

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})
010620386-01	OBS	No	1.767922	132.121428	5.8	12.225	7.9	2.4	1.48	6760	0.38	4364.78
010620386-02	OBS	No	44.080619	166.027943	343.6	2.145	12.5	11.5	1.48	6760	2.95	59.92
010620386-03	OBS	No	48.202635	163.525750	465.8	2.026	11.2	9.4	1.48	6760	3.40	53.19
010620386-04	OBS	No	22.111977	133.011494	313.4	2.066	11.3	10.7	1.48	6760	2.94	150.34
010620386-05	OBS	No	157.912847	247.435004	263.1	5.144	9.8	9.7	1.48	6760	2.71	10.93
010620386-06	OBS	No	282.834750	152.515978	274.3	3.433	8.8	9.1	1.48	6760	2.72	5.03
010620386-07	OBS	No	18.357959	145.864348	253.8	2.290	10.9	10.9	1.48	6760	2.41	192.67
010620386-08	OBS	No	16.002501	147.312204	275.0	2.385	9.2	8.6	1.48	6760	2.77	231.38
010620386-09	OBS	No	35.872668	147.147565	262.3	3.732	8.5	8.7	1.48	6760	2.65	78.87
010620386-10	OBS	No	23.456372	140.582661	266.4	2.684	8.4	7.5	1.48	6760	2.82	138.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010620386-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
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010620386-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010620386-09	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
010620386-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

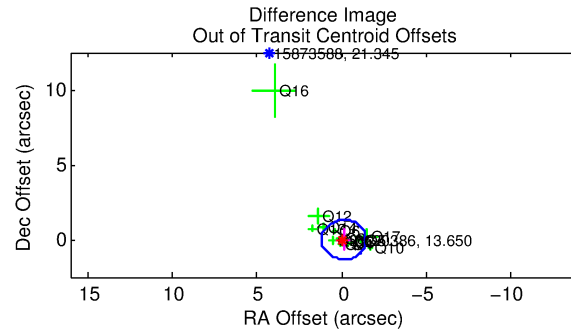
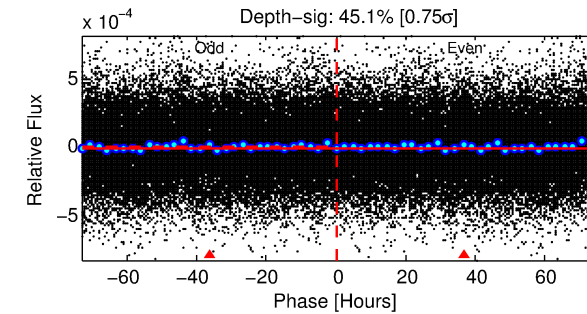
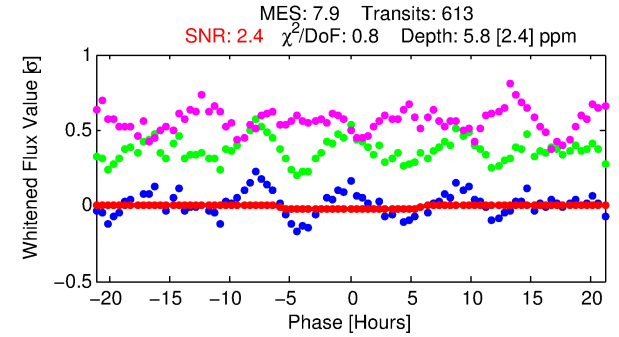
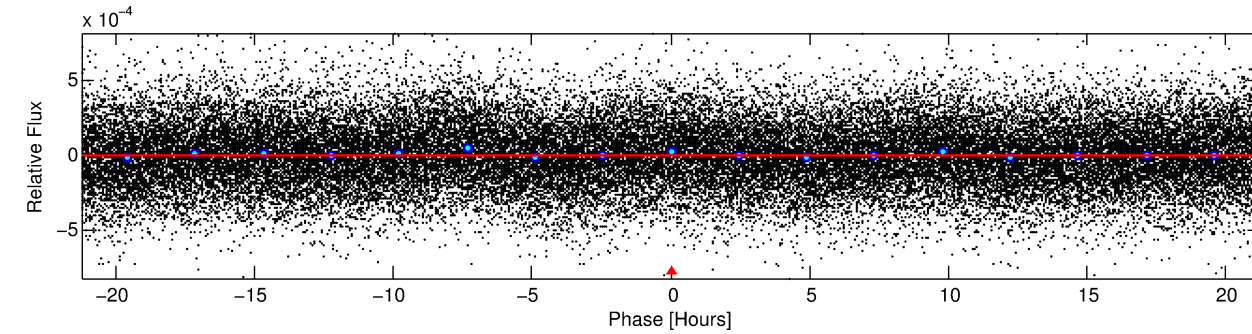
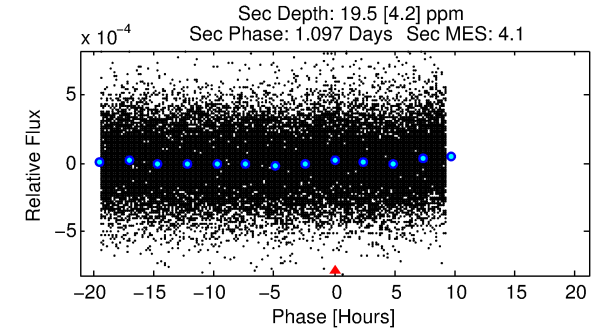
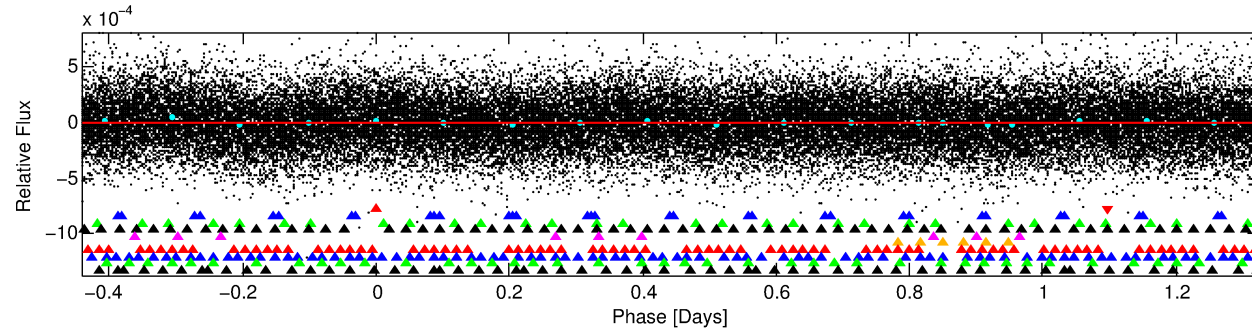
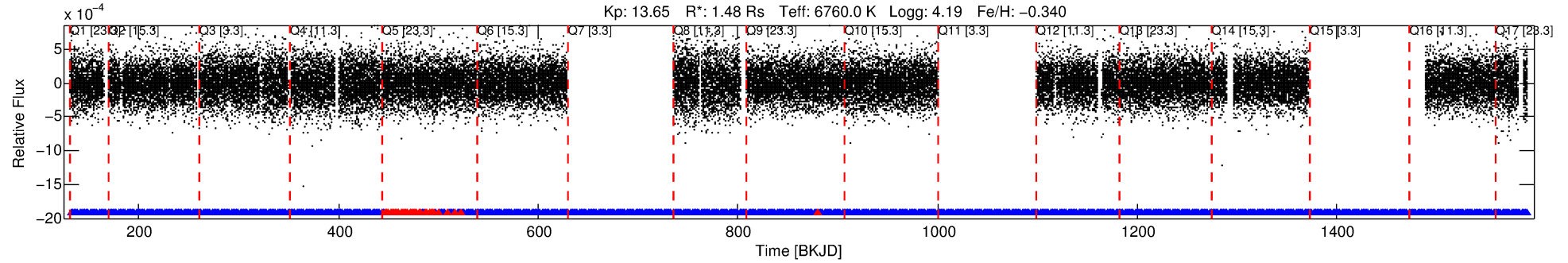
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010620386-01

No Significant Match Found

DV One-Page Summary

KIC: 10620386 Candidate: 1 of 10 Period: 1.768 d



DV Fit Results:

Period = 1.76792 [0.00014] d
Epoch = 132.1214 [0.0372] BKJD
Rp/R* = 0.0024 [0.0036]
a/R* = 1.16 [2.63]
b = 0.68 [7.15]
Seff = 4364.78 [1547.39]
Teq = 2073 [184] K
Rp = 0.38 [0.60] Re
a = 0.0307 [0.0070] AU
Ag = 69.58 [216.26] [0.32σ]
Teffp = 9255 [7159] K [1.00σ]

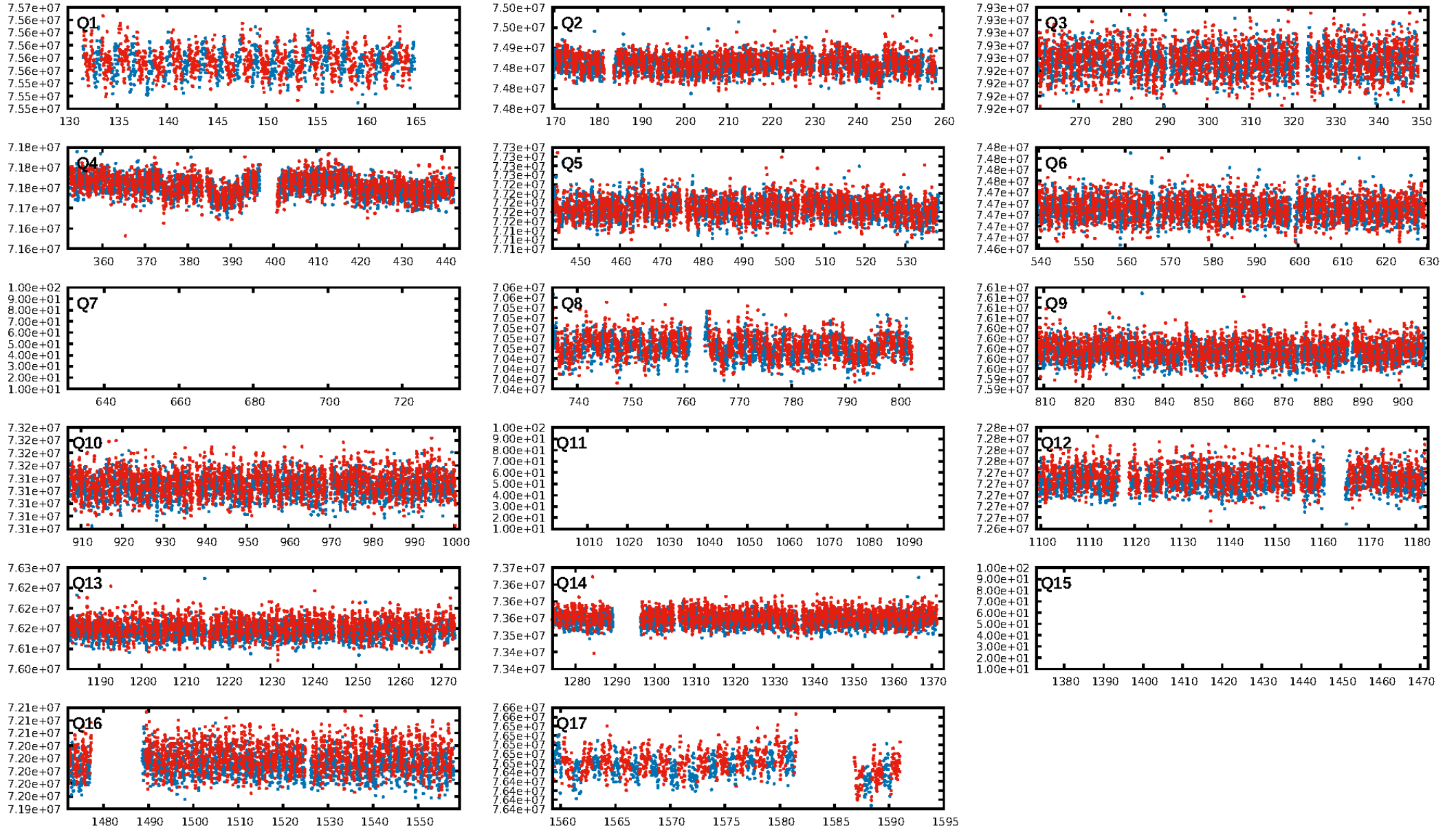
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [27.43σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.36e-09
RollingBand-fgt: 0.94 [546/578]
GhostDiagnostic-chr: 0.173
Centroid-sig: 0.0%
Centroid-so: 15.015 arcsec [3.52σ]
OotOffset-rm: 0.112 arcsec [0.26σ]
KicOffset-rm: 0.238 arcsec [0.31σ]
OotOffset-st: 4/1/4/4 [13]
KicOffset-st: 4/1/4/4 [13]
DiffImageQuality-fgm: 0.85 [11/13]
DiffImageOverlap-fno: 1.00 [14/14]

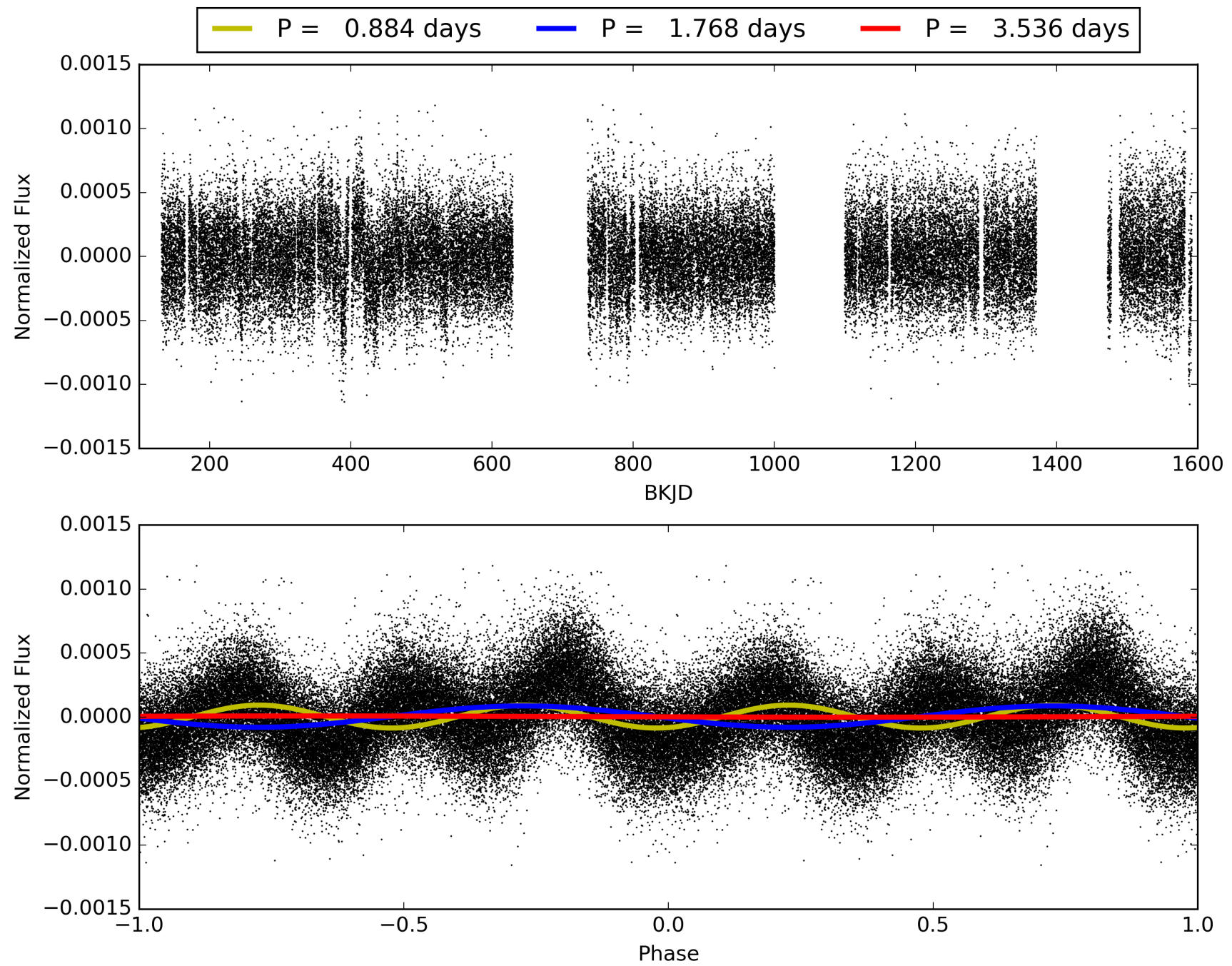
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:19:38 Z

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

TCE 010620386-01, PDC Light Curves

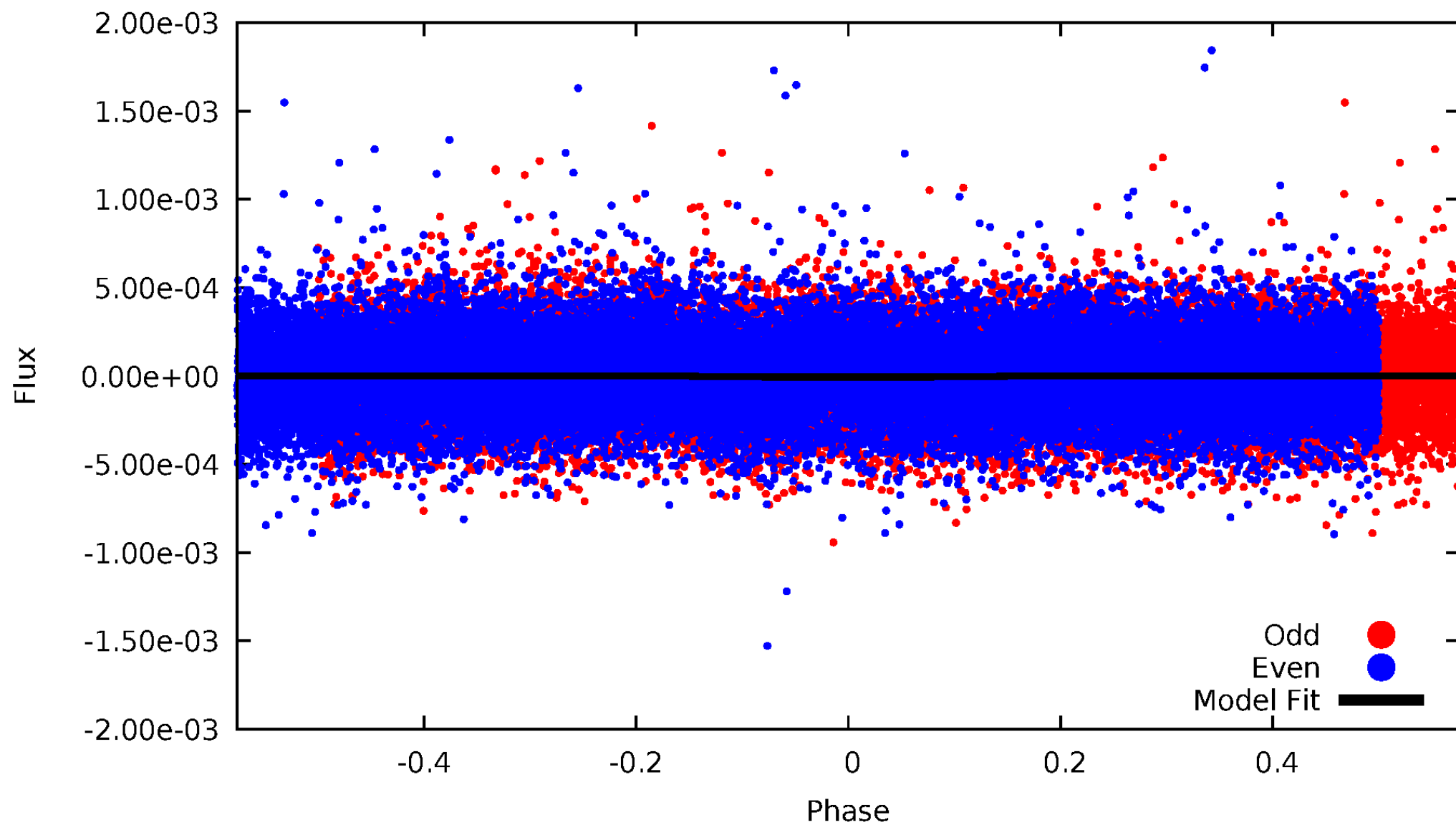


TCE 010620386-01



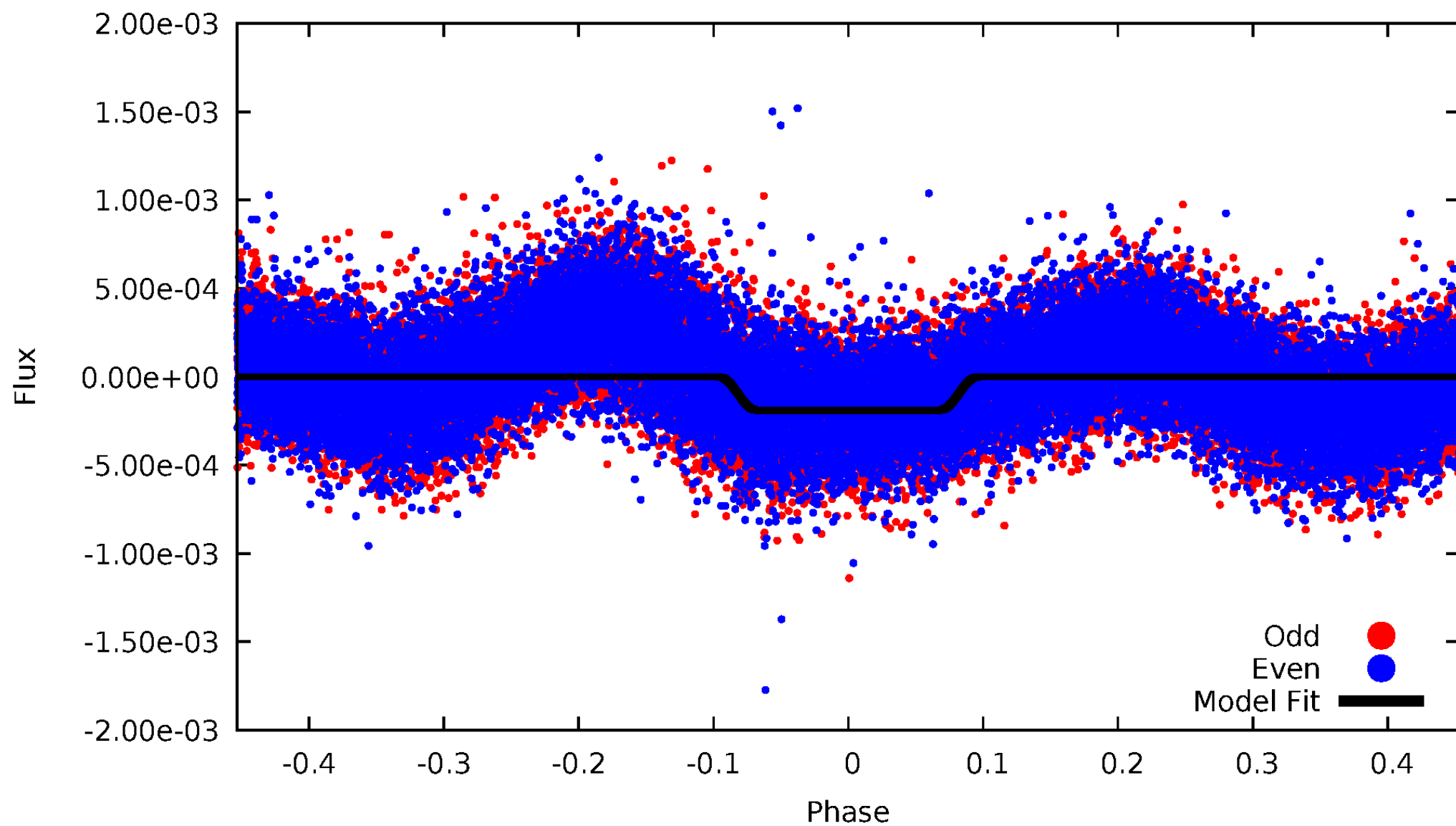
DV Odd/Even

TCE 010620386-01



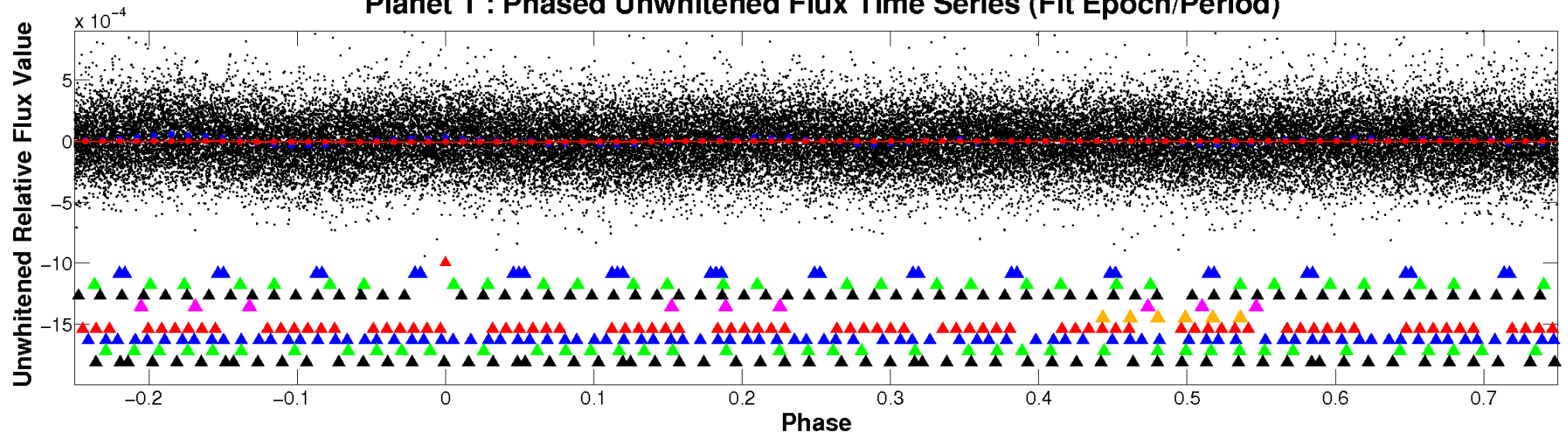
ALT Odd/Even

TCE 010620386-01

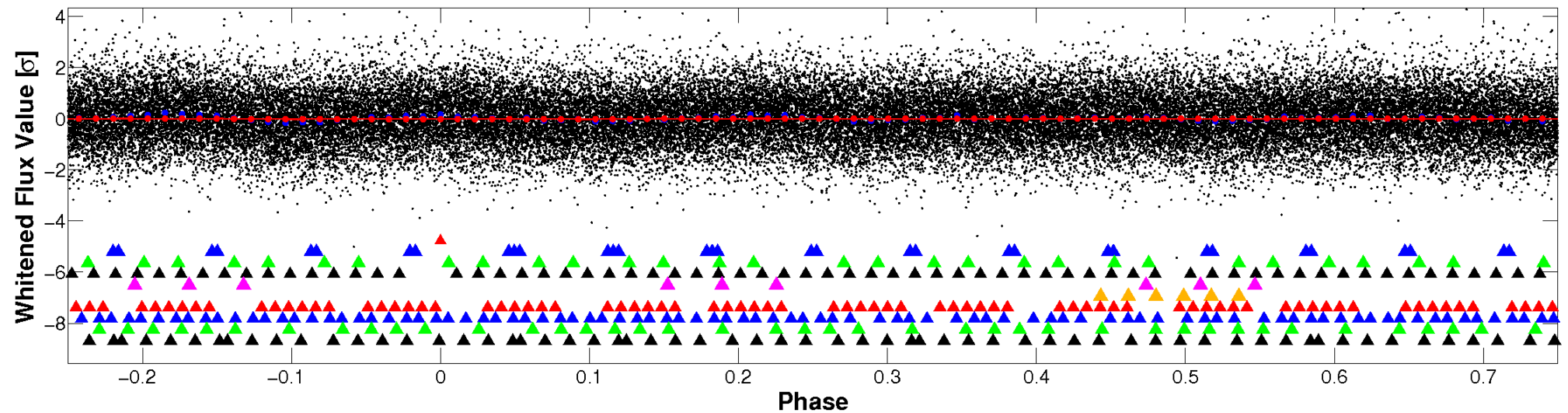


Non-Whitened Vs. Whitened Light Curve

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

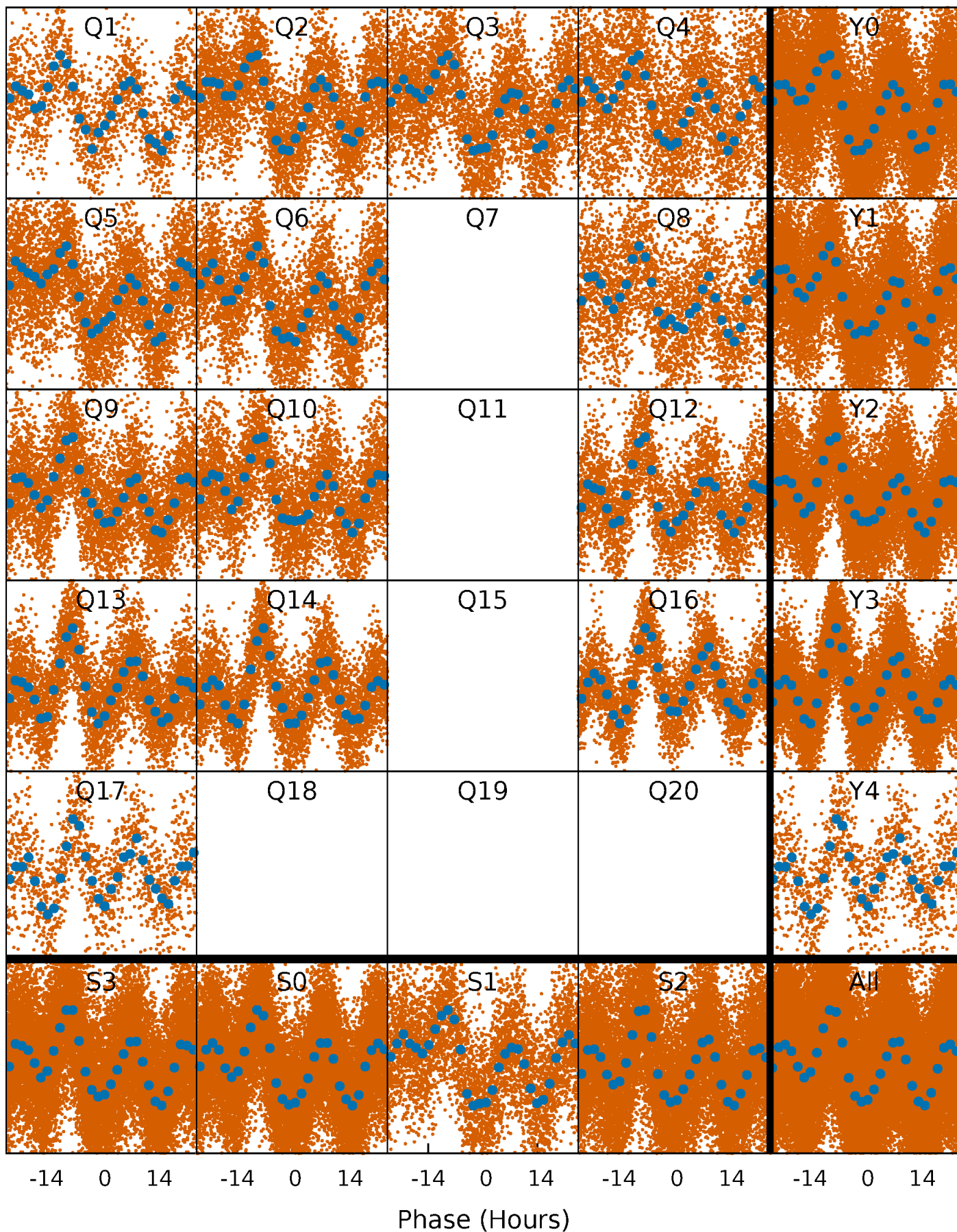


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



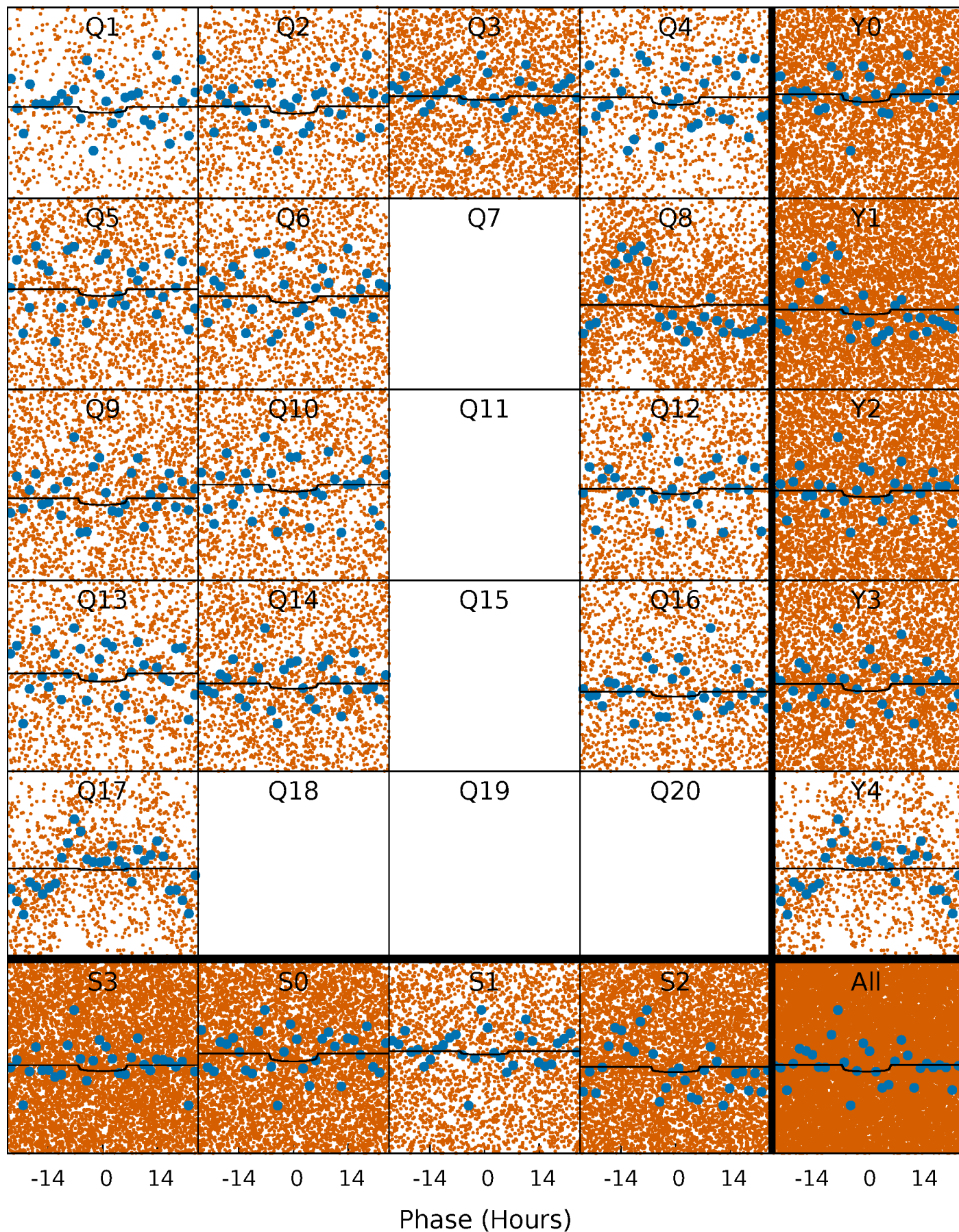
PDC Quarter-Phased Transit Curves

TCE 010620386-01 P= 1.767922 Days $T_0=132.121428$ (BKJD)



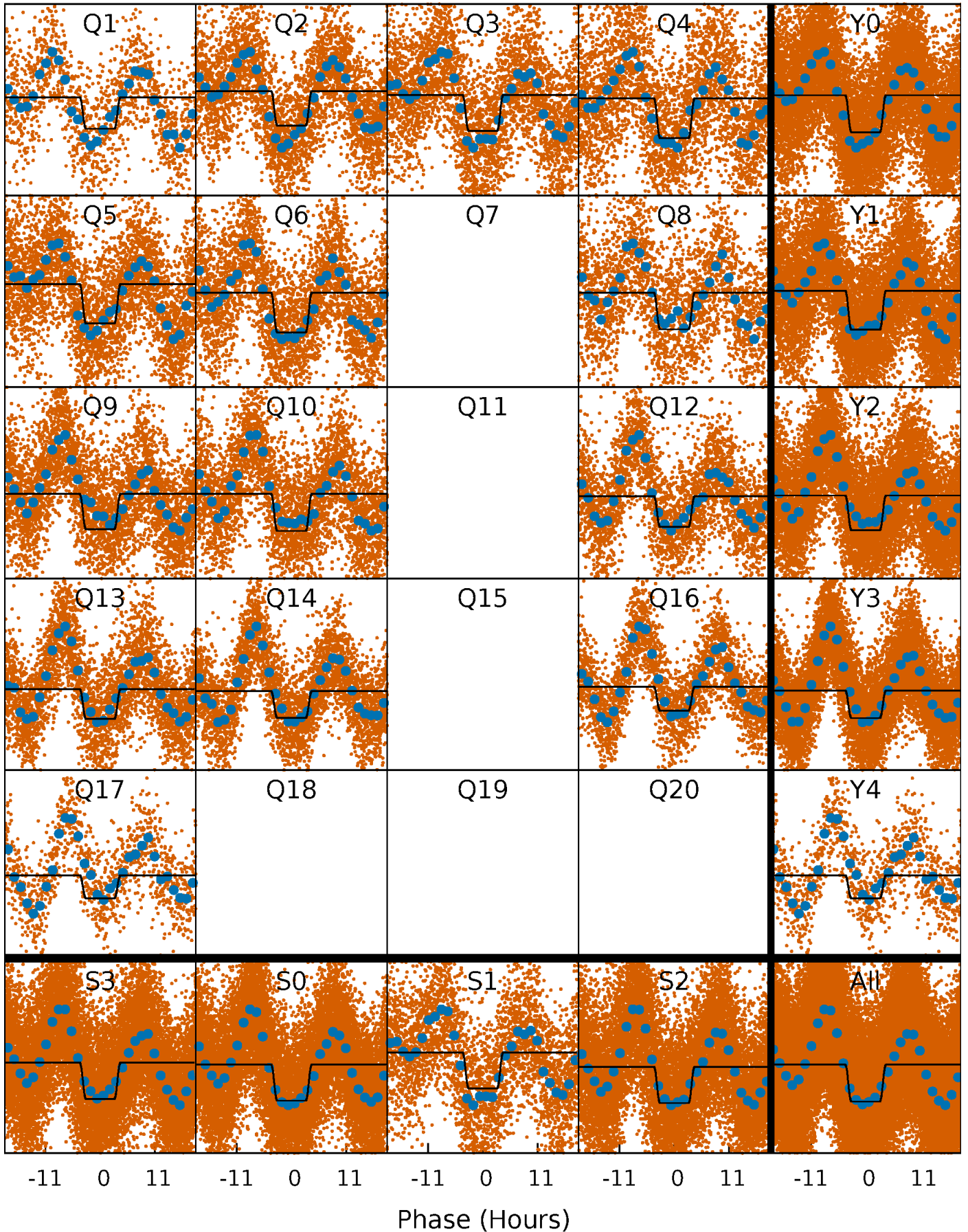
DV Quarter-Phased Transit Curves

TCE 010620386-01 P= 1.767922 Days $T_0=132.121428$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

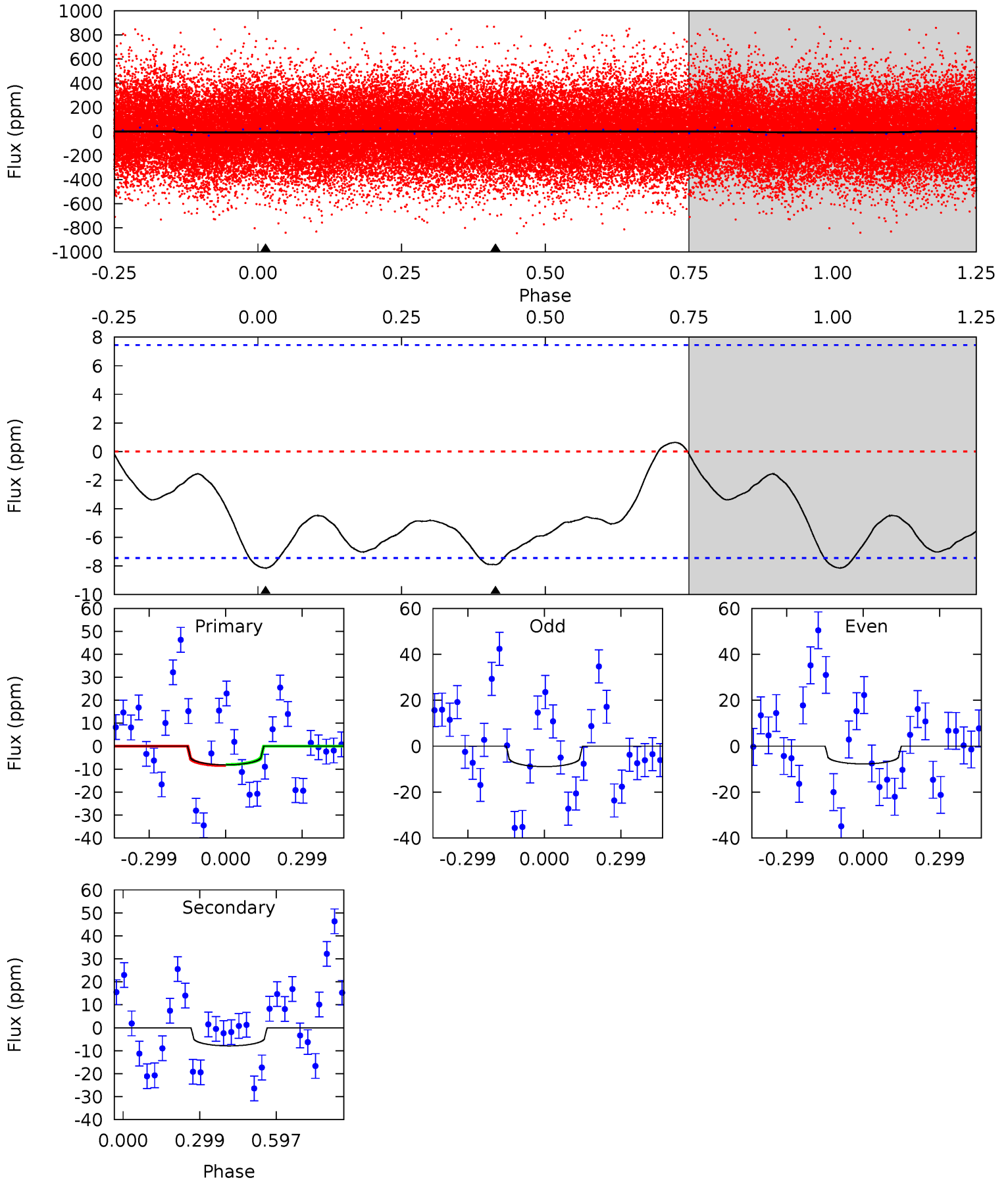
TCE 010620386-01 P= 1.767943 Days $T_0=132.092474$ (BKJD)



DV Model-Shift Uniqueness Test

010620386-01, P = 1.767922 Days, E = 130.353506 Days

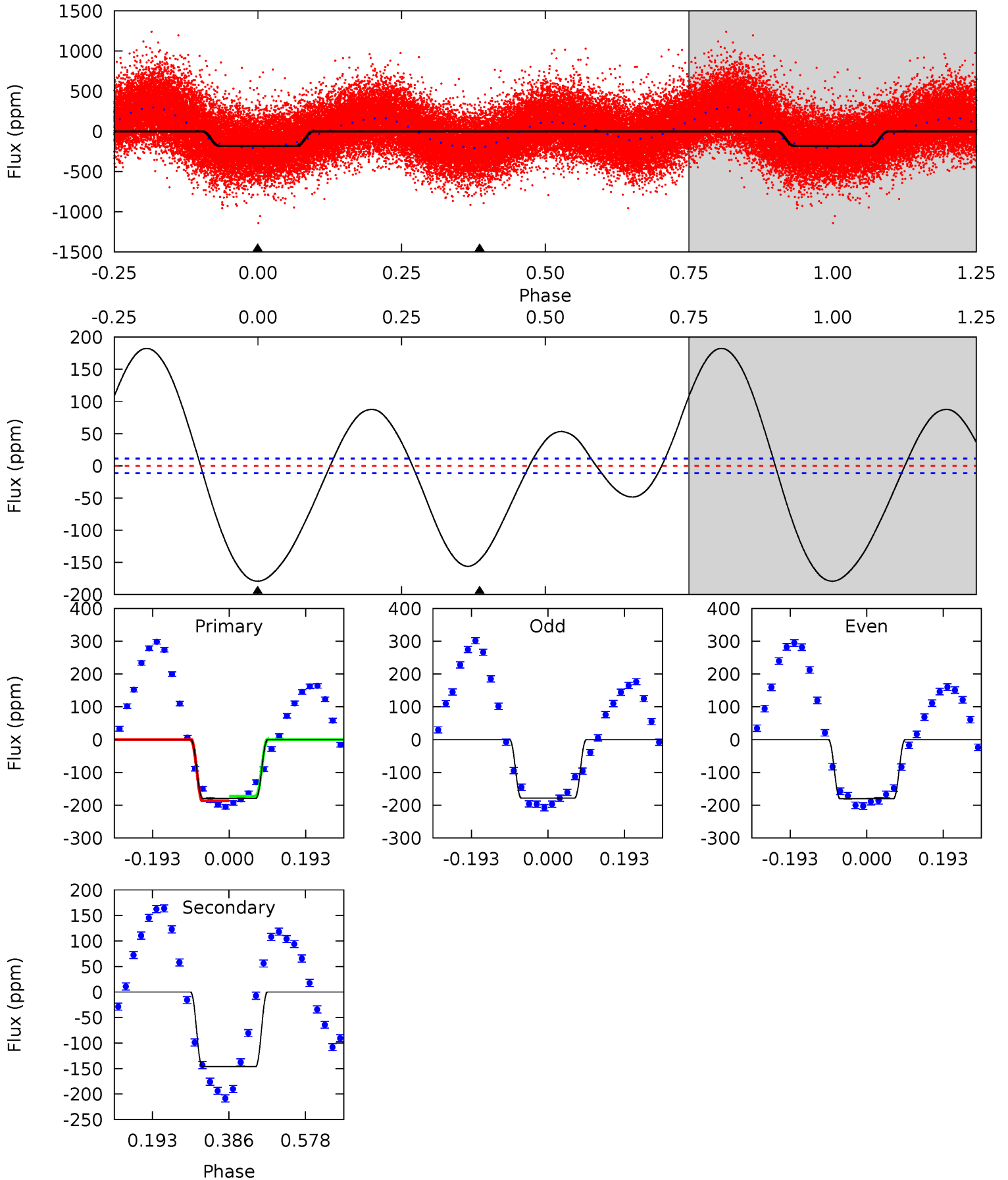
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.74	4.60	0	0	4.33	1.04	0.57	4.74	4.74	4.60	4.60	0.34	1.57	0.07	0.12



Alt Model-Shift Uniqueness Test

010620386-01, P = 1.767943 Days, E = 130.324531 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
70.7	57.7	0	0	4.43	1.30	31.6	70.7	70.7	57.7	57.7	0.41	1.01	0.50	2.90



Stellar Parameters For KIC 010620386

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6760^{+189}_{-236}	$4.187^{+0.158}_{-0.175}$	$-0.340^{+0.250}_{-0.300}$	$1.482^{+0.410}_{-0.336}$	$1.237^{+0.170}_{-0.208}$	$0.536^{+0.500}_{-0.263}$
	+3%/-3%	+4%/-4%	+74%/-88%	+28%/-23%	+14%/-17%	+93%/-49%
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 010620386-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-8 ± 2	$0.59^{+0.54}_{-0.37}$	2910^{+212}_{-204}	5922^{+5339}_{-1504}	12^{+79}_{-9}
Alt.	-146 ± 3	$2.24^{+0.73}_{-0.69}$	2895^{+220}_{-177}	6291^{+1225}_{-756}	15^{+16}_{-6}

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

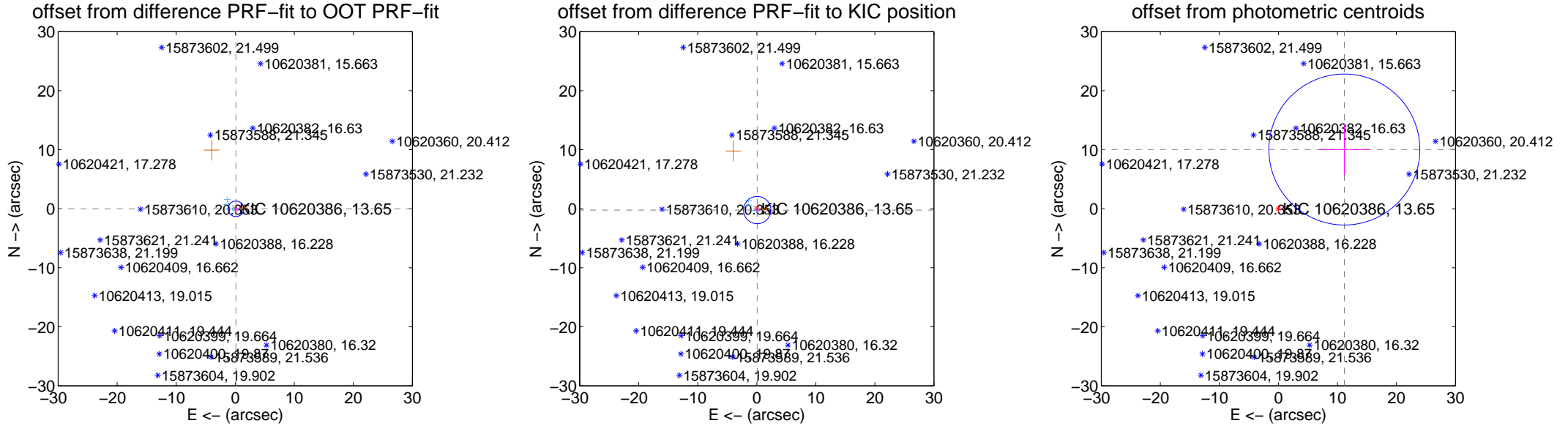
DV Centroid Data

Supplemental centroid analysis for 010620386-01. Kepler magnitude: 13.65. Transit SNR 2.40

There are 11 quarters with good PRF difference image offsets

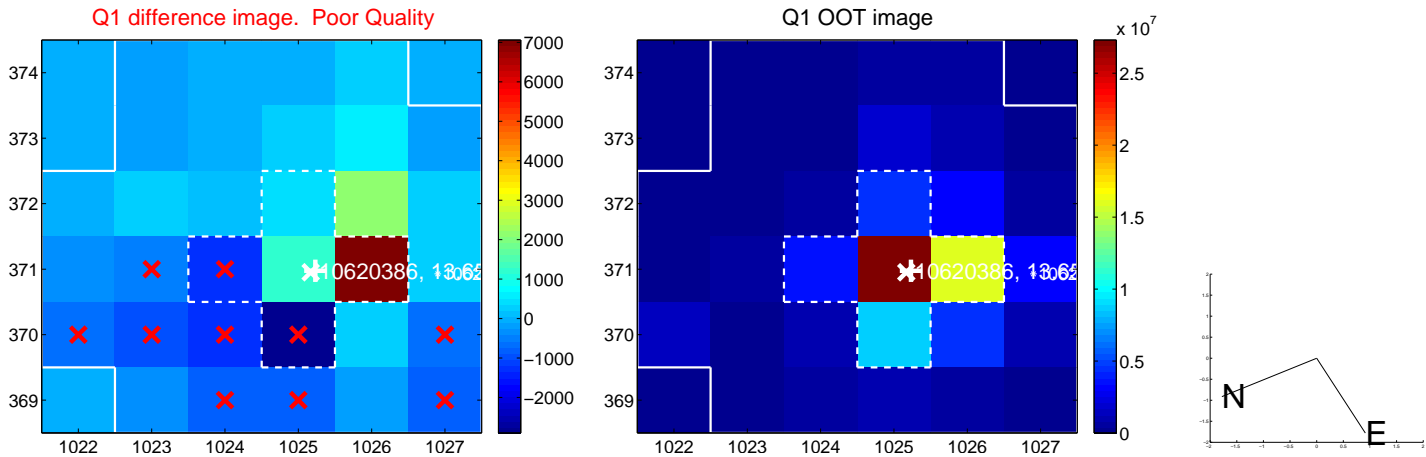
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.112 ± 0.438	0.26	-0.111 ± 0.376	-0.012 ± 0.710
PRF-fit source offset from KIC position	0.238 ± 0.771	0.31	-0.066 ± 0.399	-0.228 ± 0.710
photometric centroid source offset	15.02 ± 4.26	3.52	-11.17 ± 4.22	10.03 ± 4.31

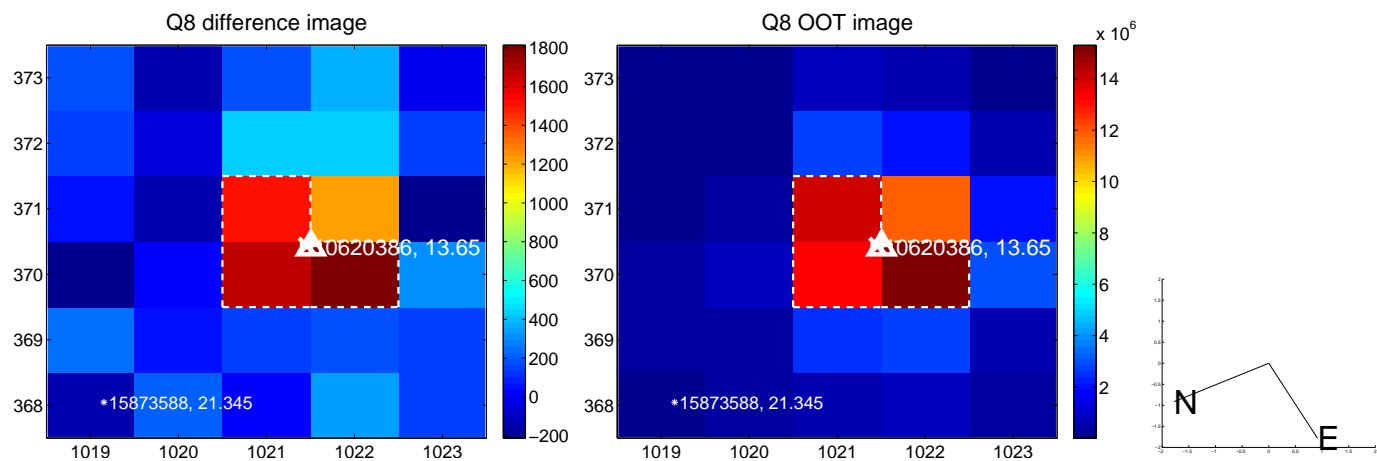
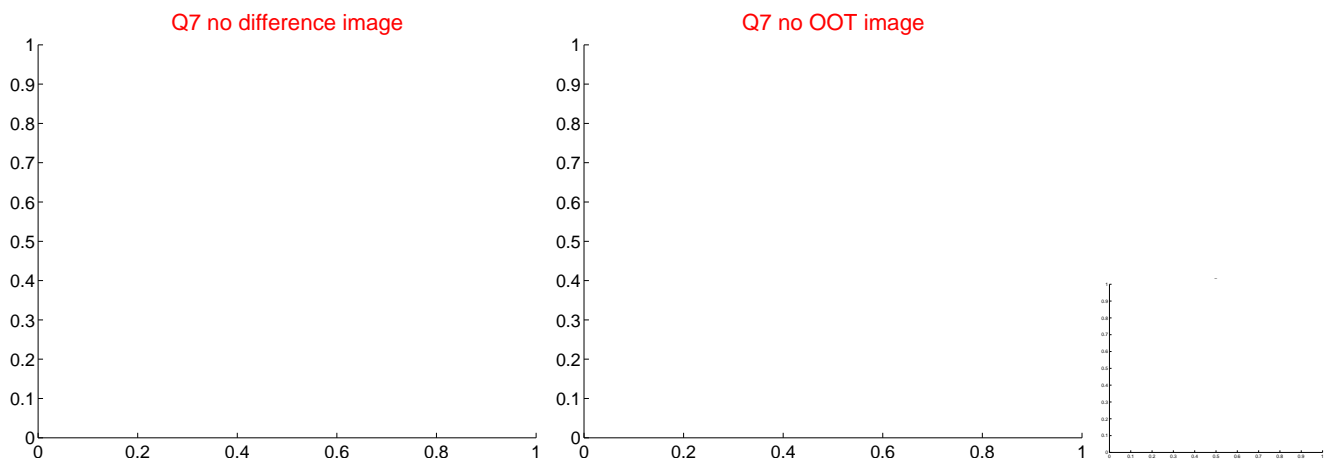
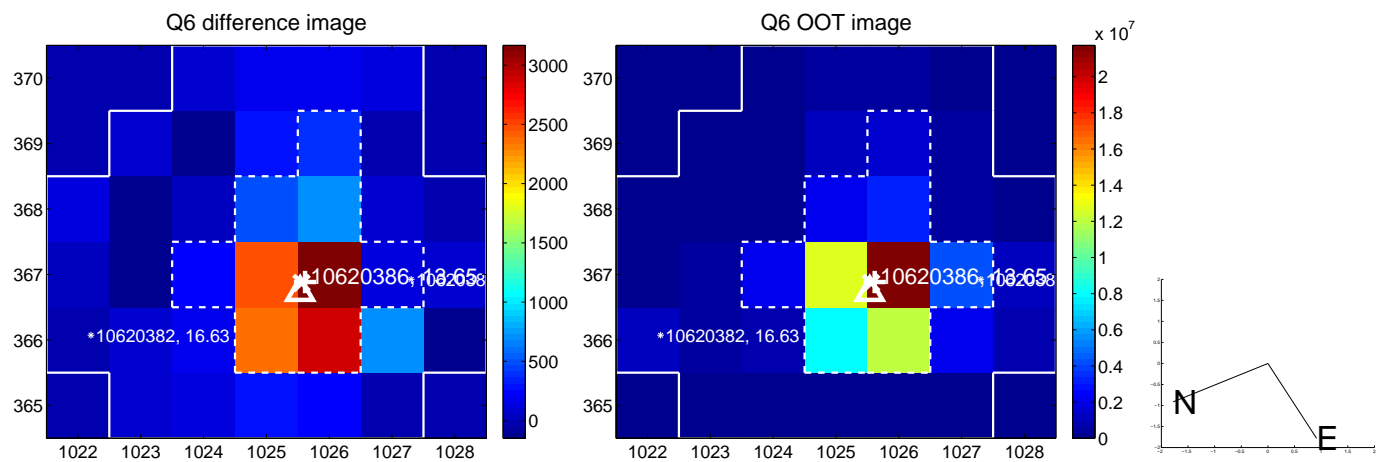
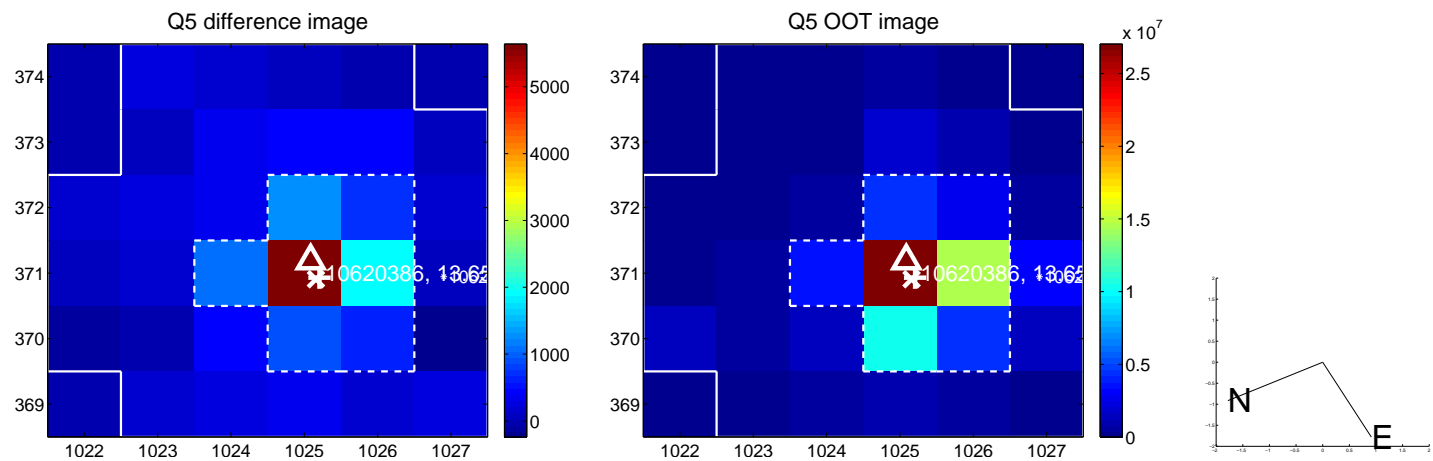


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

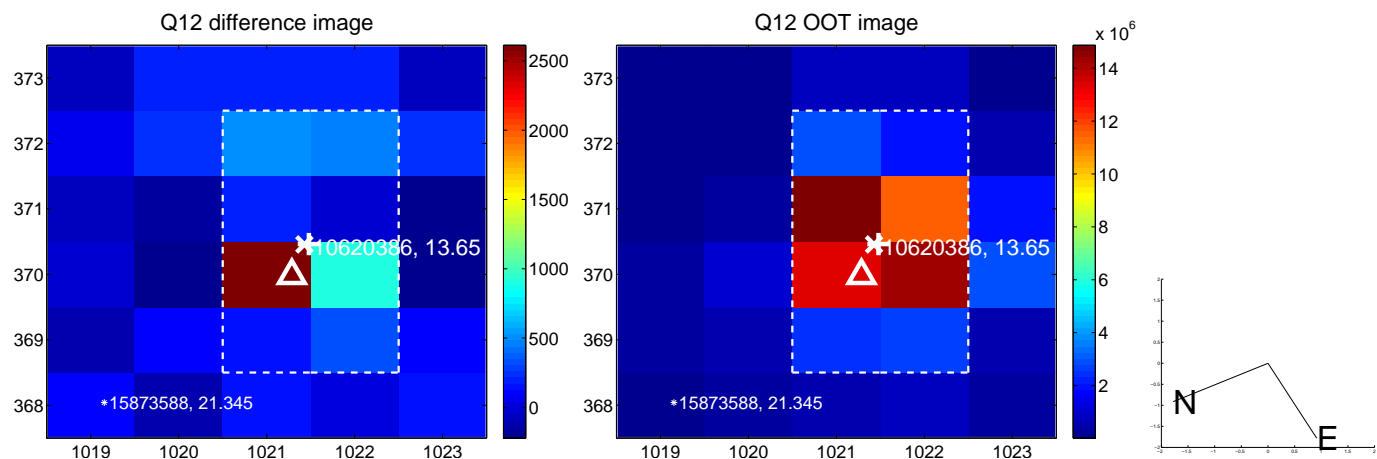
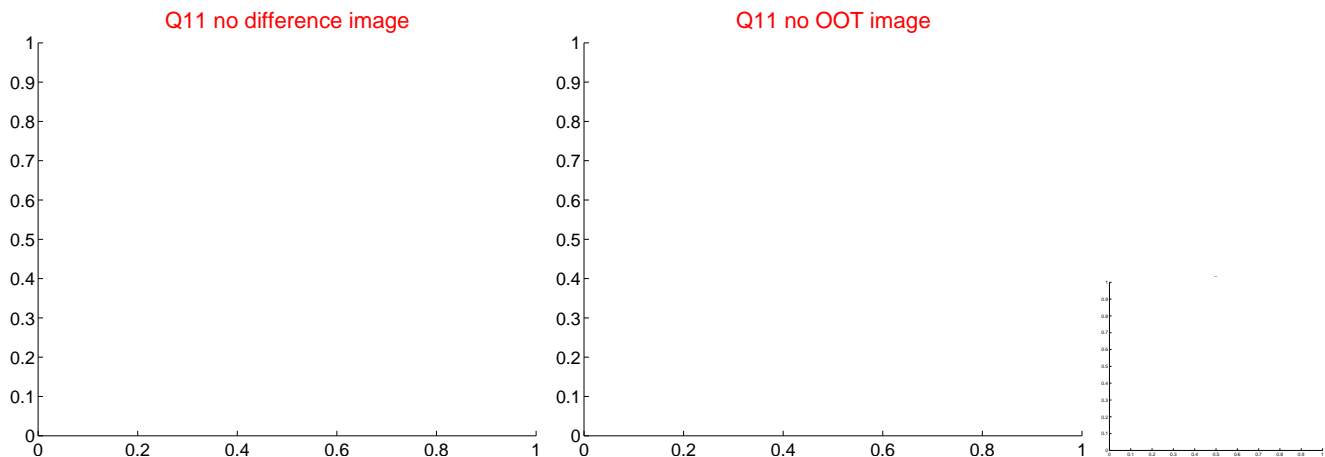
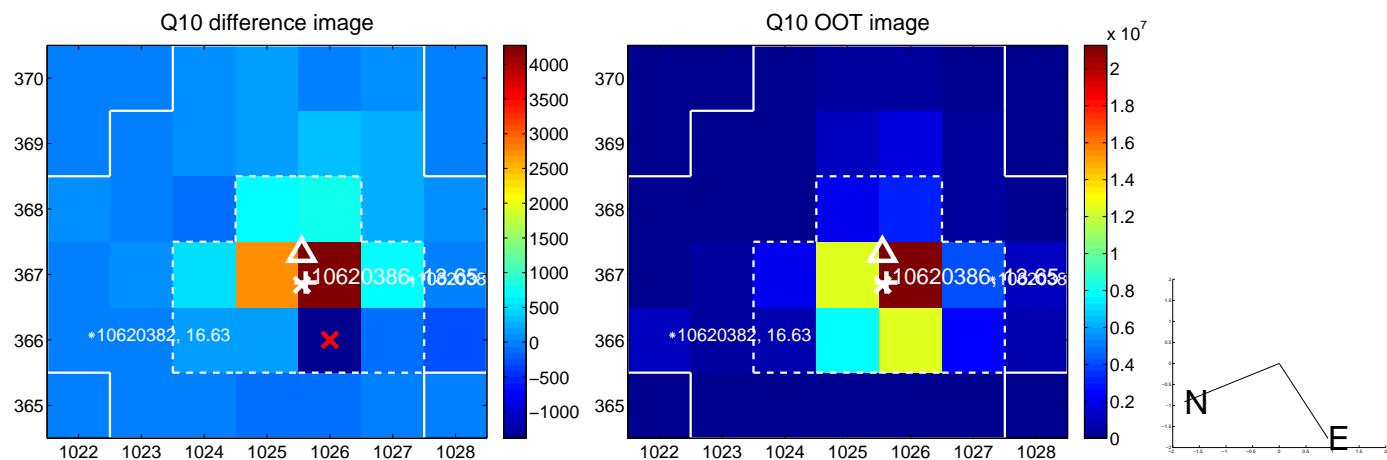
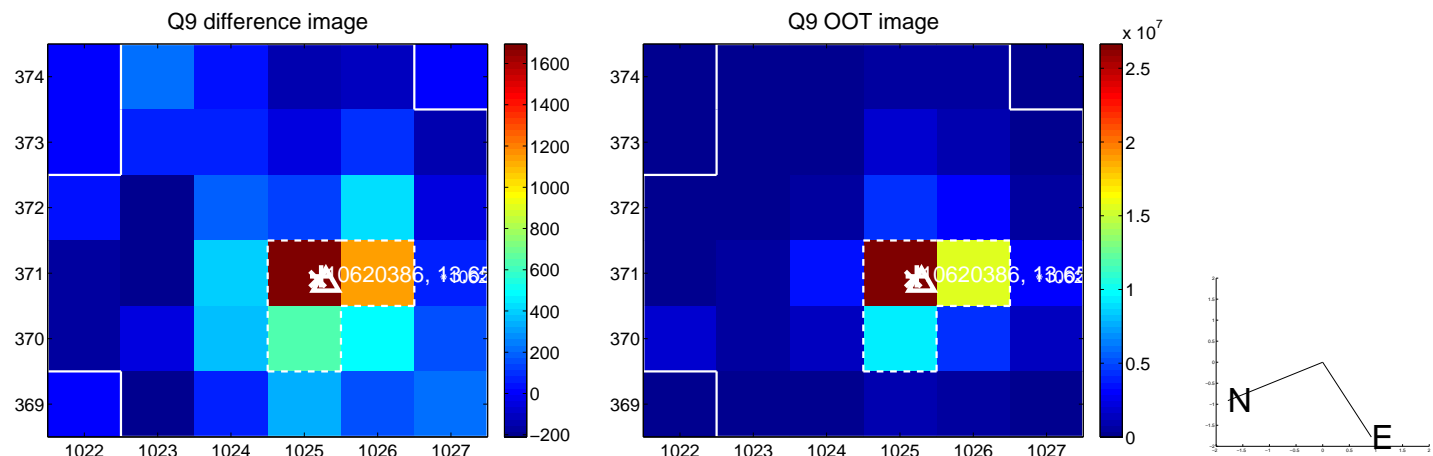
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



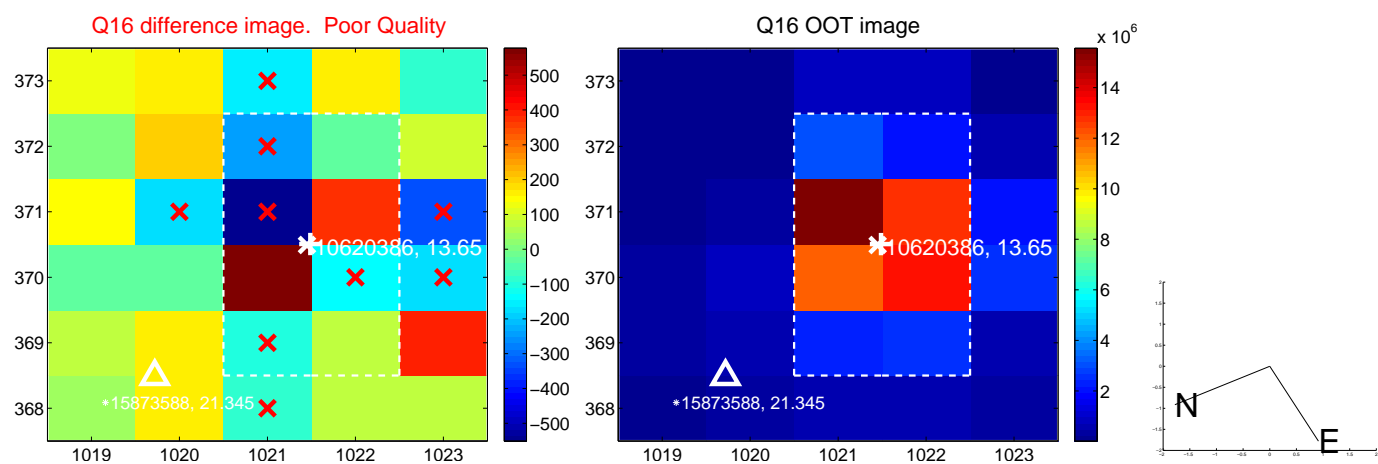
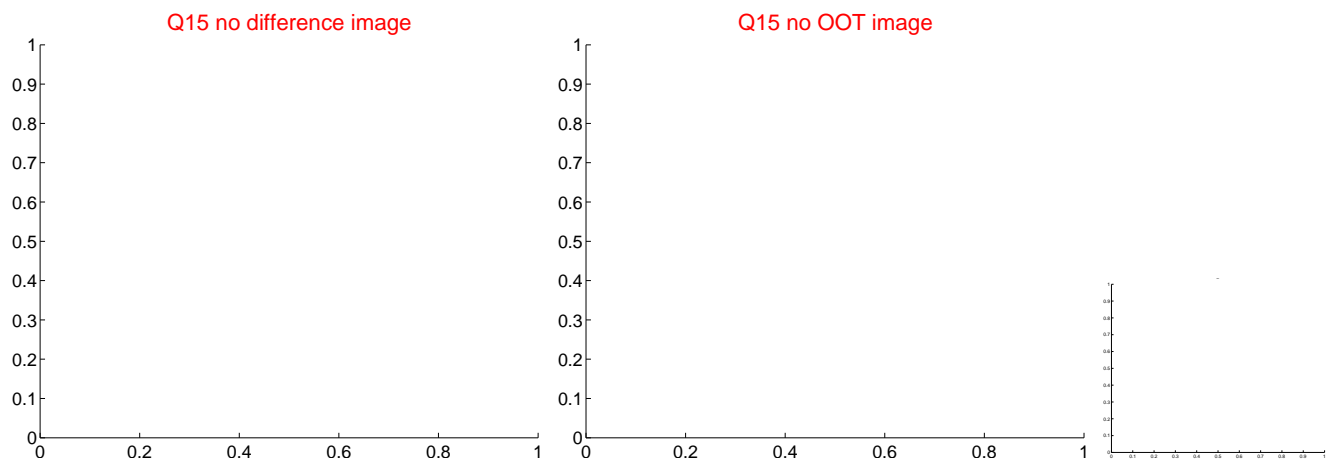
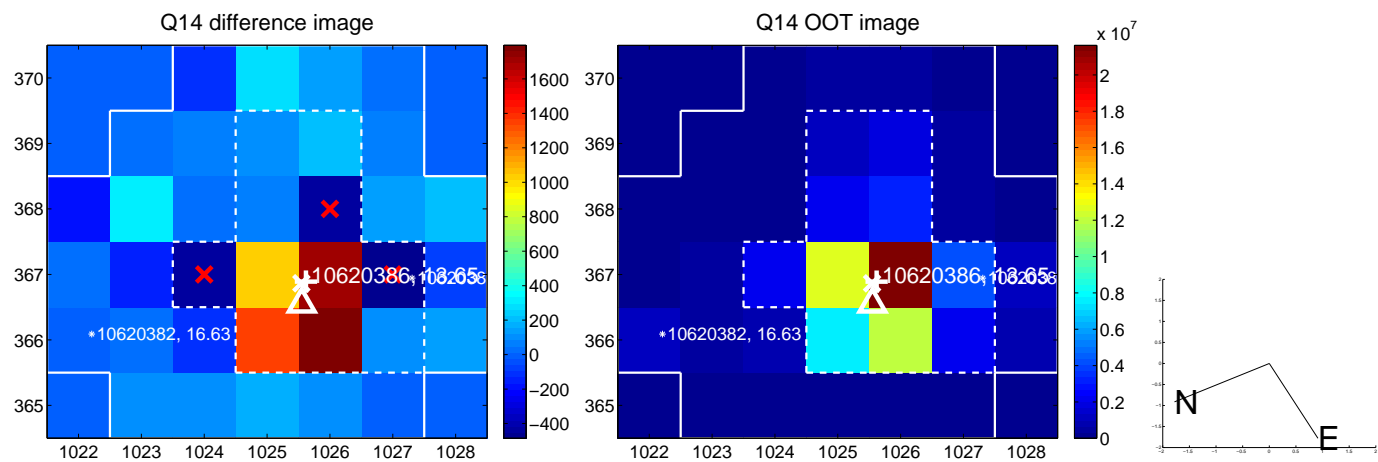
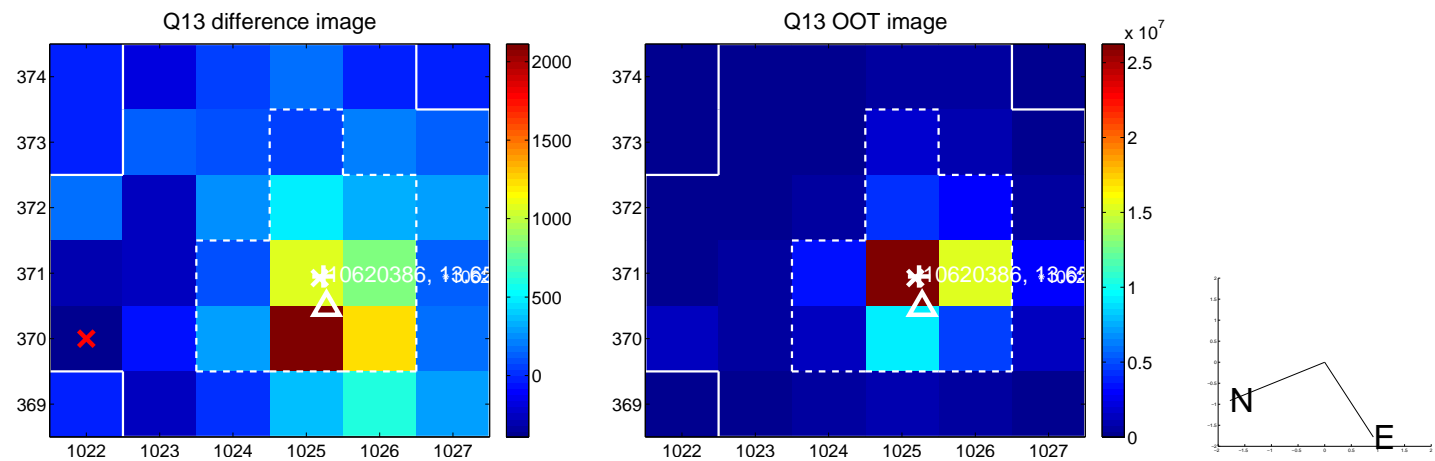
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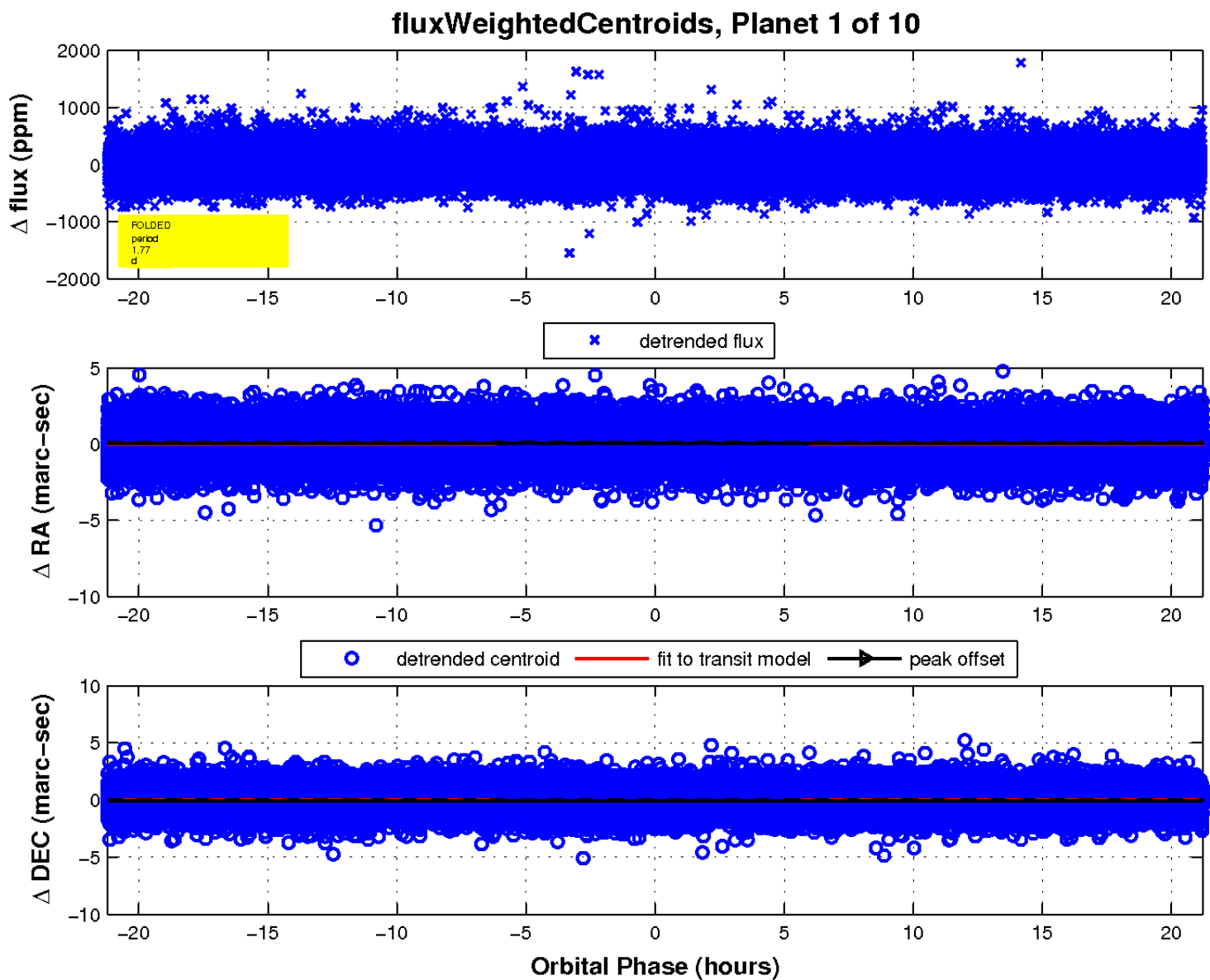
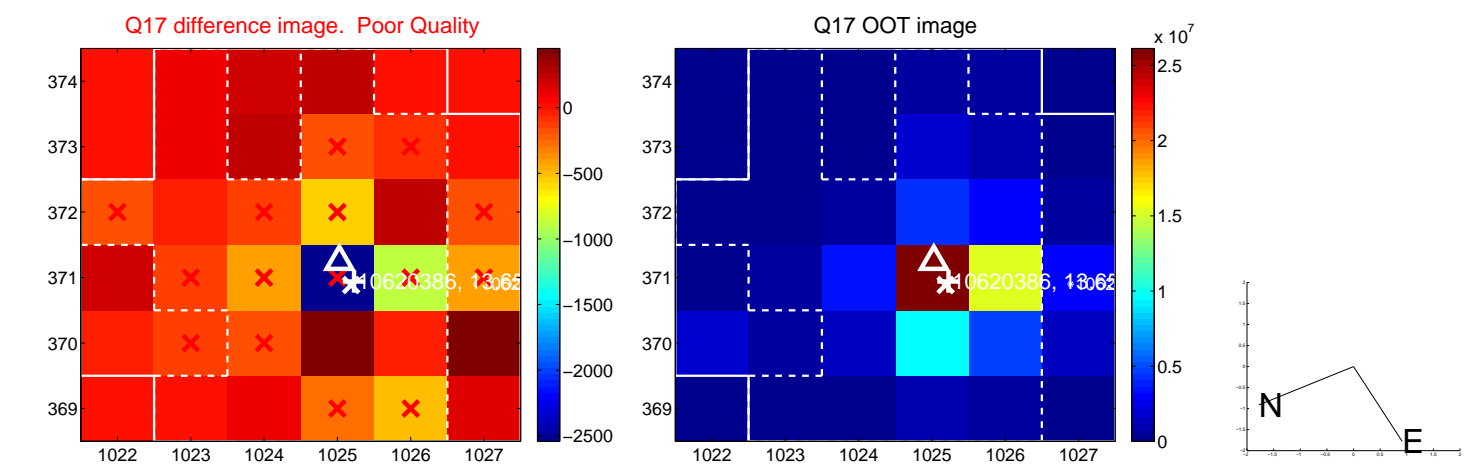
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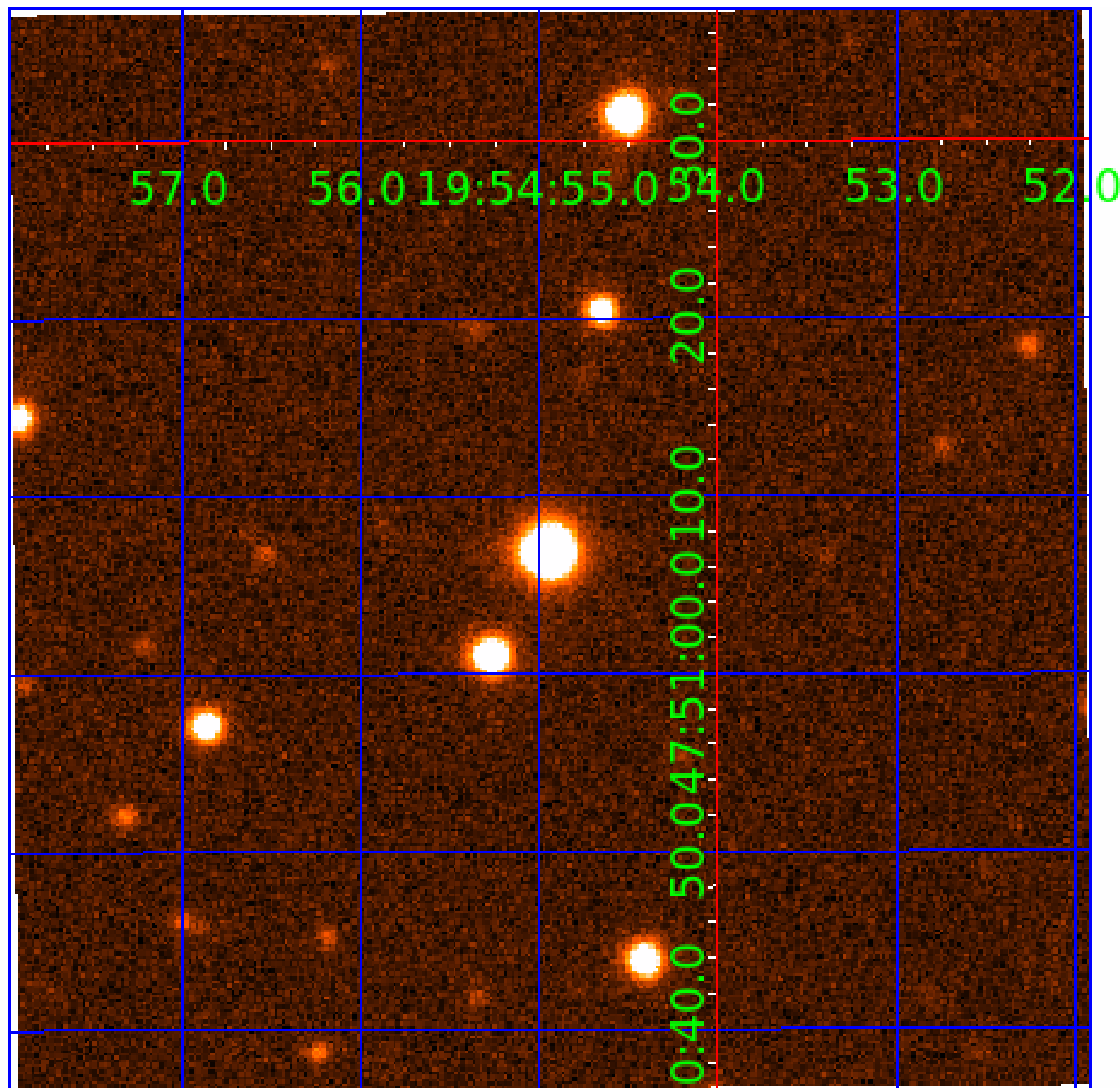


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UKIRT Image

Declination



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010620386-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
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010620386-09	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
010620386-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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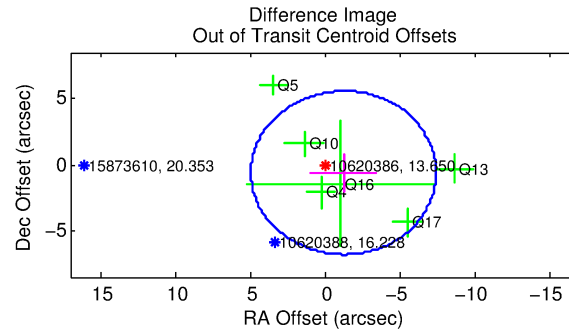
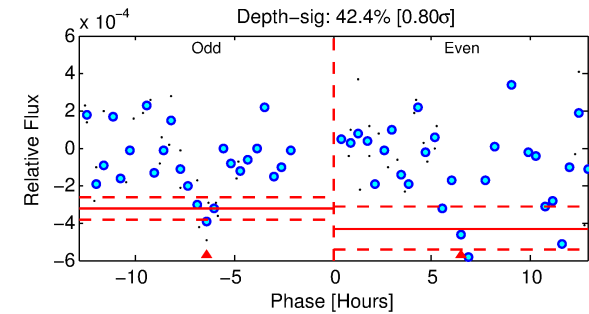
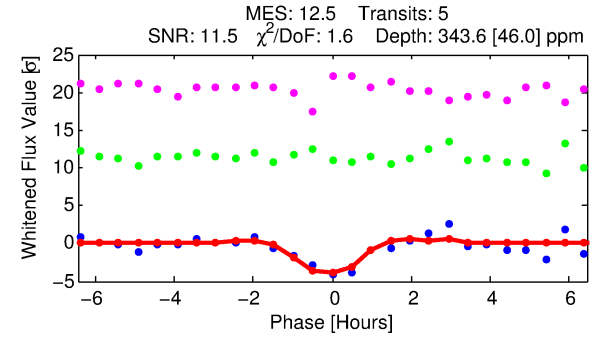
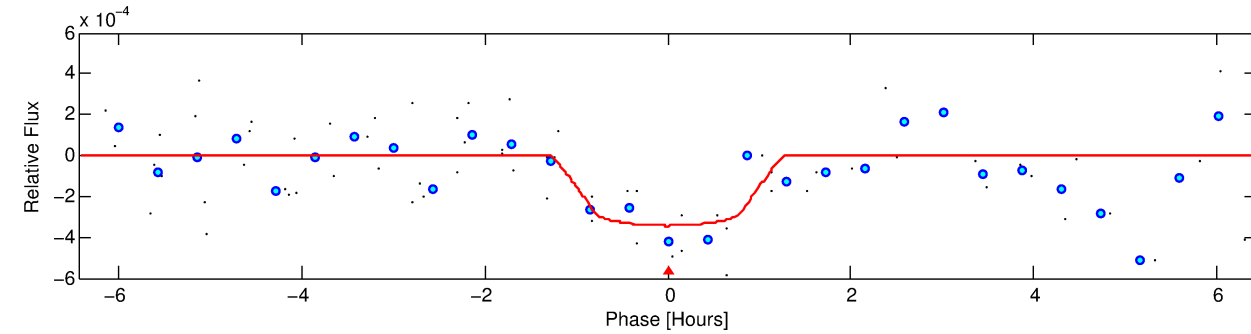
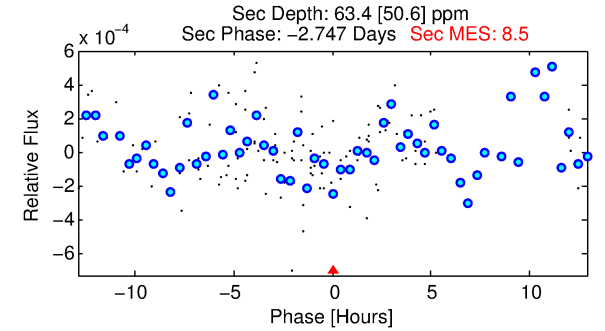
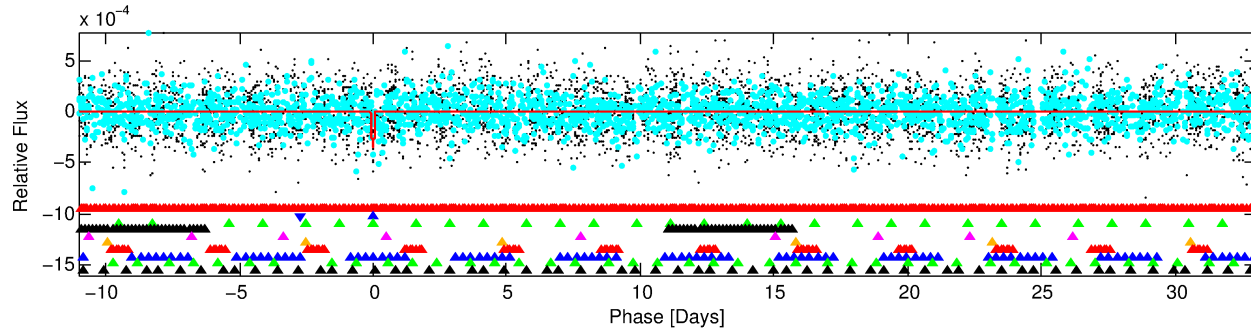
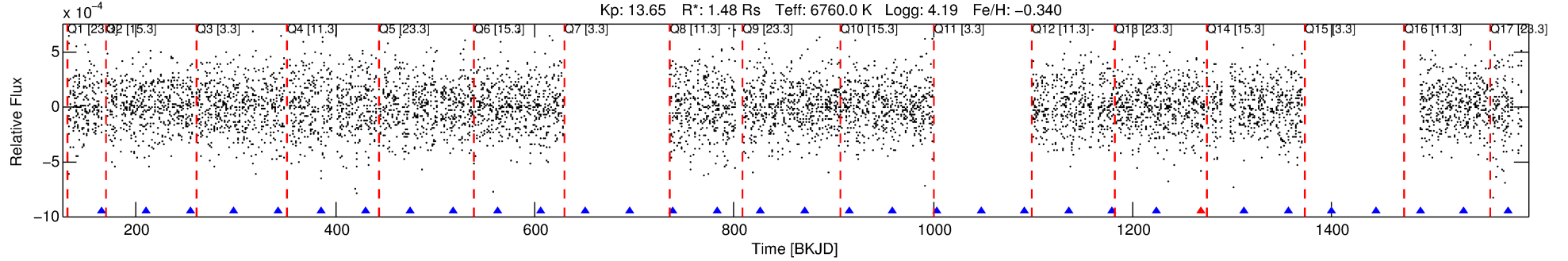
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010620386-02

No Significant Match Found

DV One-Page Summary

KIC: 10620386 Candidate: 2 of 10 Period: 44.081 d



DV Fit Results:

Period = 44.08062 [0.00054] d
Epoch = 166.0279 [0.0111] BKJD
Rp/R* = 0.0183 [0.0519]
a/R* = 114.66 [1895.32]
b = 0.71 [11.60]
Seff = 59.92 [21.24]
Teq = 709 [63] K
Rp = 2.95 [8.44] Re
a = 0.2619 [0.0597] AU
Ag = 274.56 [1579.22] [0.17σ]
Teffp = 4465 [6412] K [0.59σ]

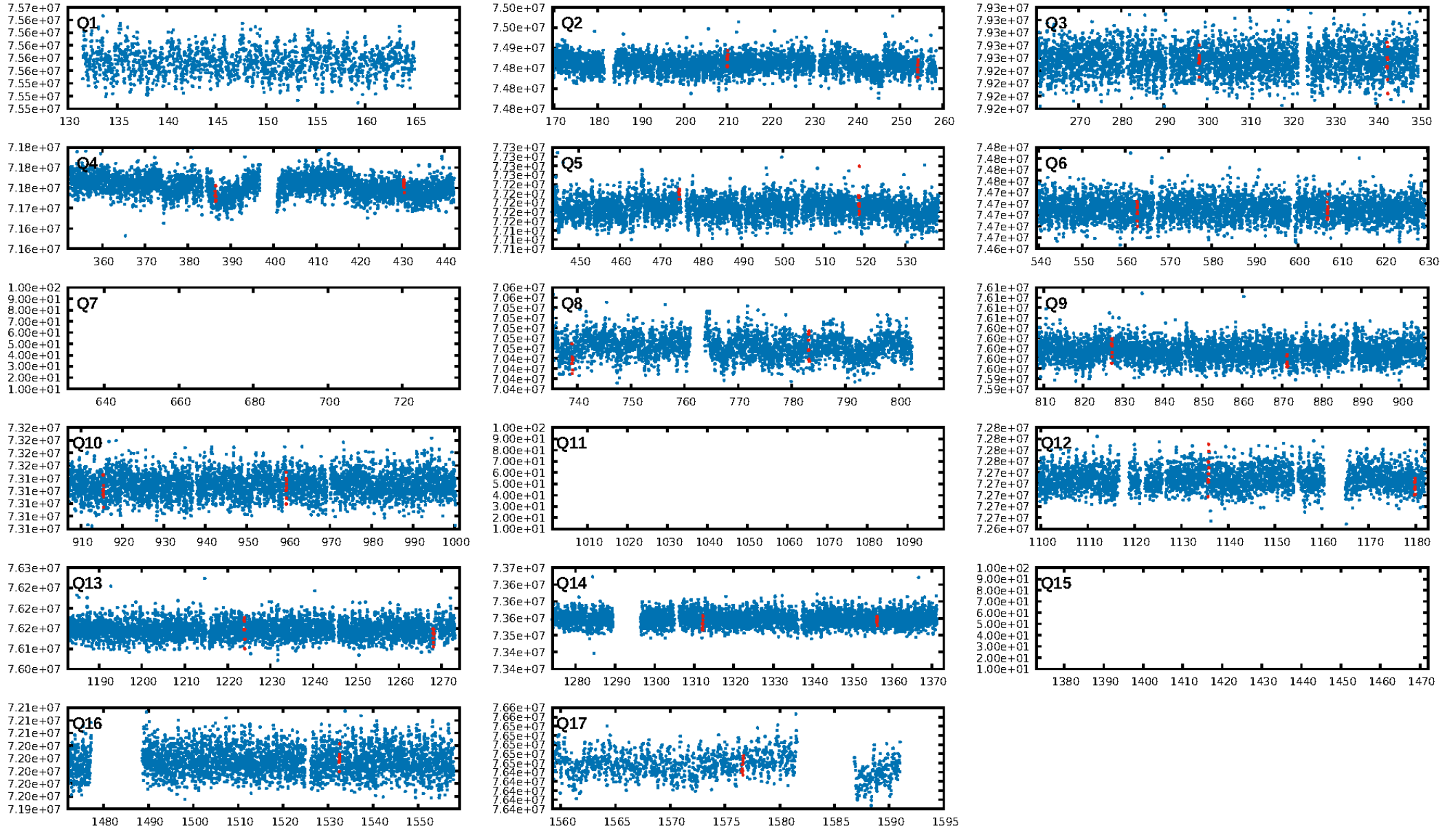
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [45.76σ]
LongPeriod-sig: 100.0% [33.53σ]
ModelChiSquare2-sig: 53.6%
ModelChiSquareGoF-sig: 98.9%
Bootstrap-pfa: 3.74e-13
RollingBand-fgt: 0.80 [4/5]
GhostDiagnostic-chr: -1.899
Centroid-sig: 4.6%
Centroid-so: 1.454 arcsec [1.84σ]
OotOffset-rm: 1.406 arcsec [0.68σ]
OotOffset-st: 1/0/2/3 [6]
KicOffset-rm: 1.586 arcsec [0.81σ]
KicOffset-st: 1/0/2/3 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 0.46 [6/13]

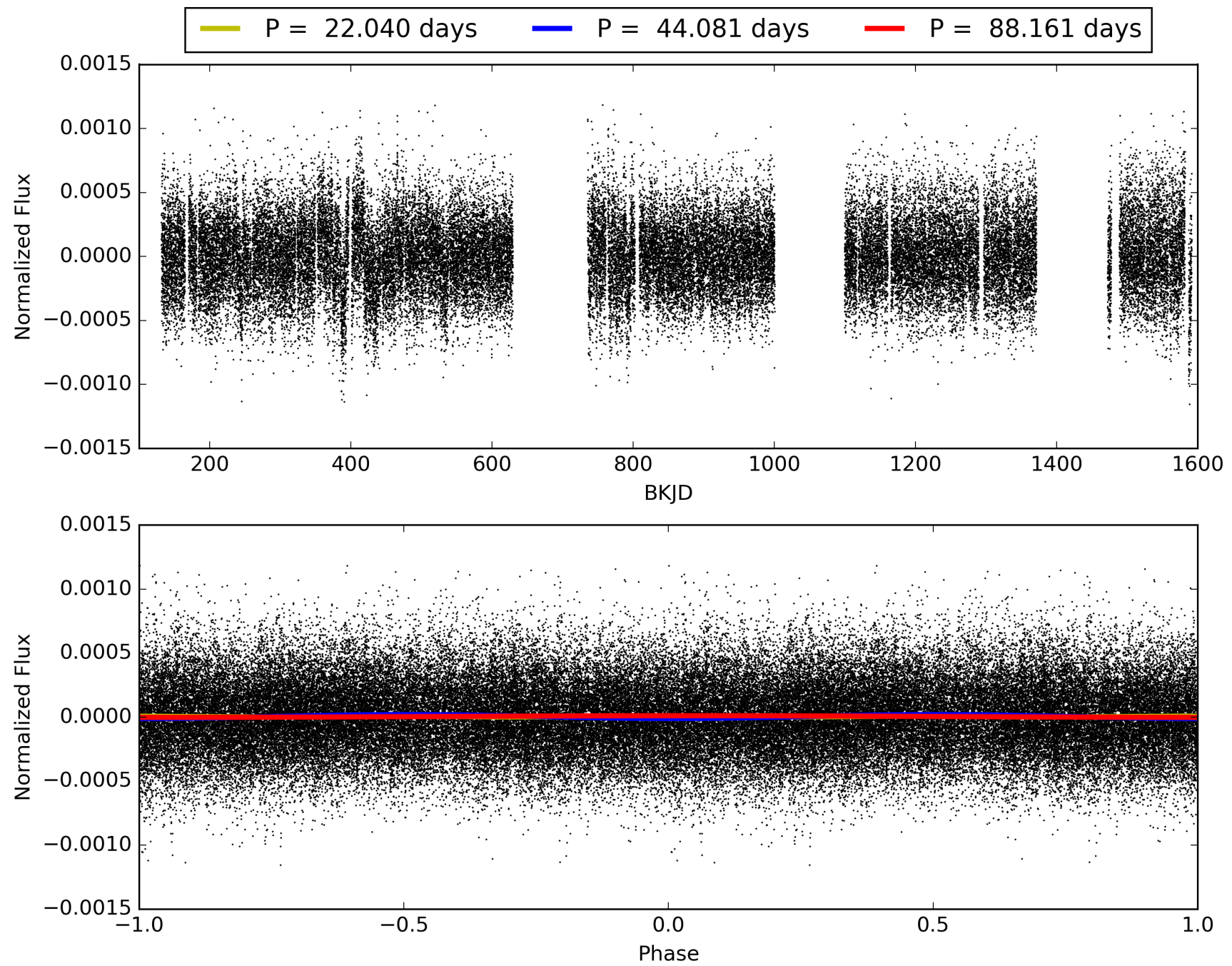
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:19:48 Z

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

TCE 010620386-02, PDC Light Curves

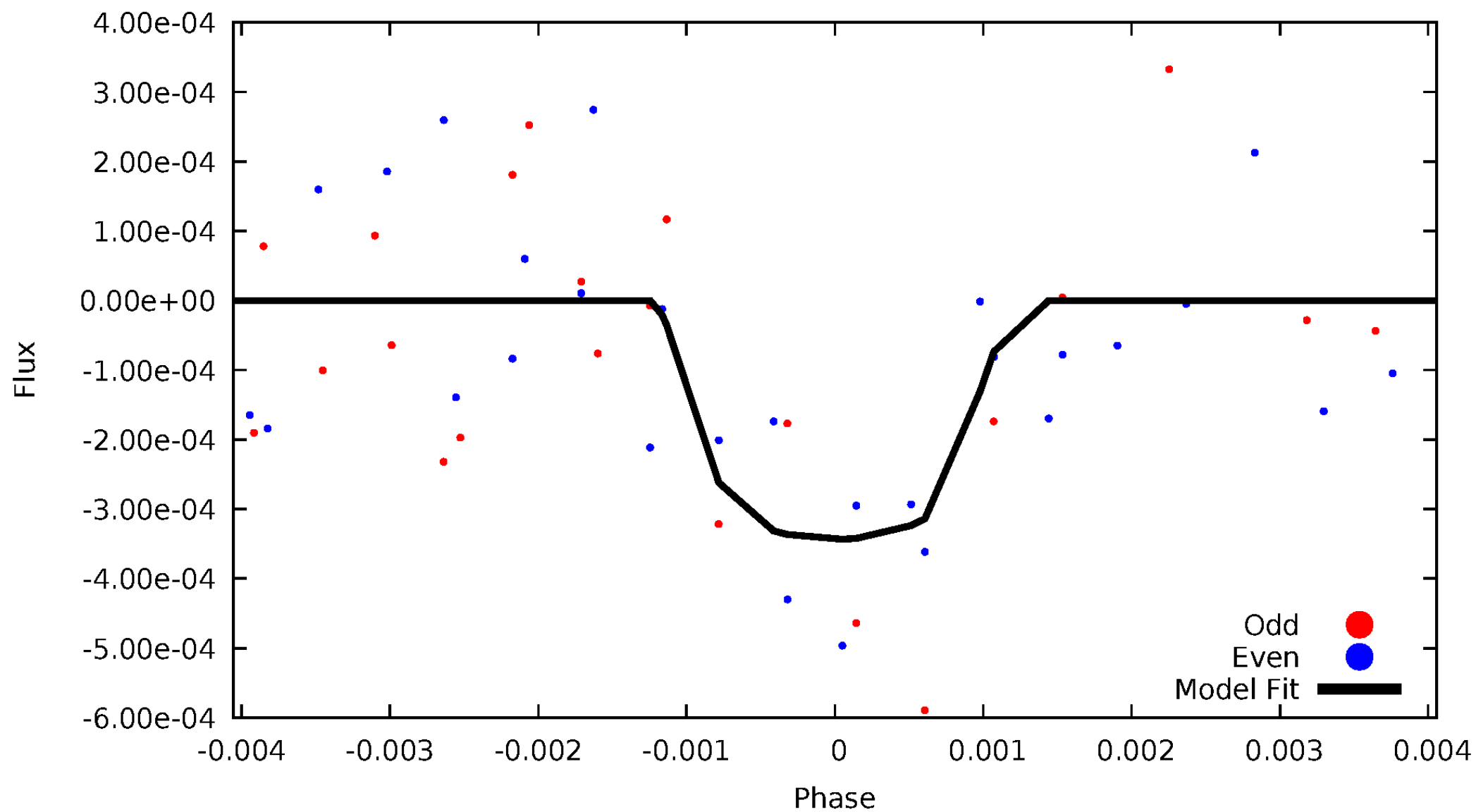


TCE 010620386-02



DV Odd/Even

TCE 010620386-02

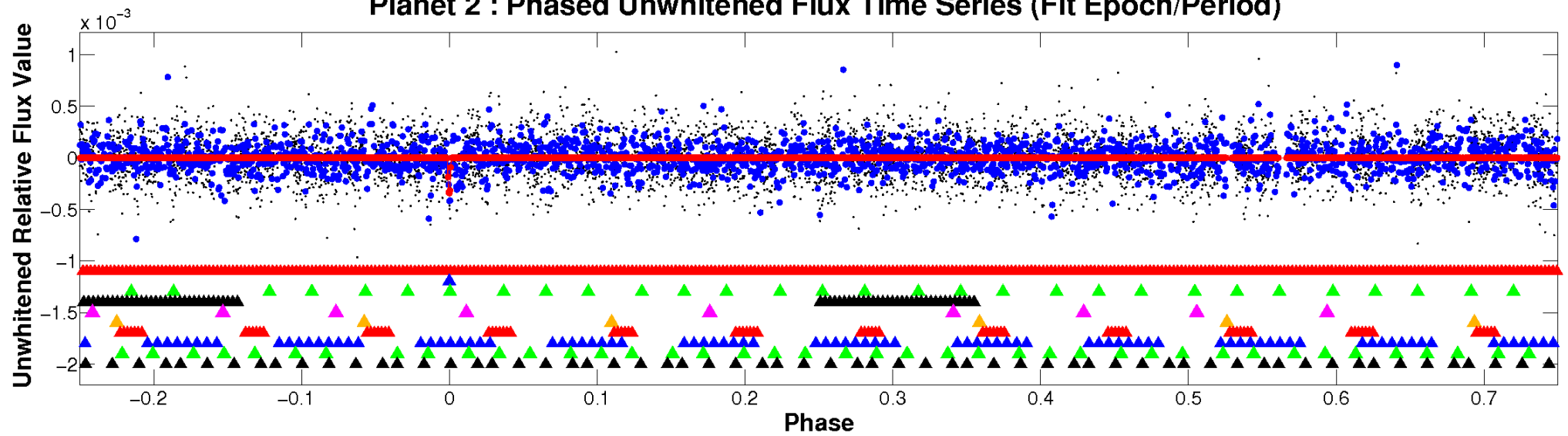


ALT Odd/Even

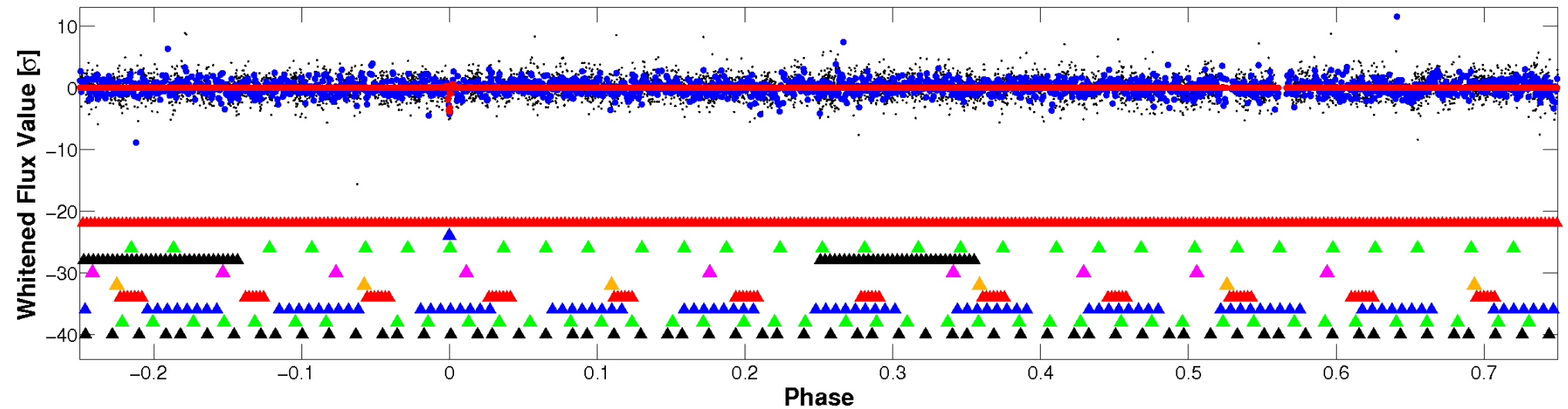
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

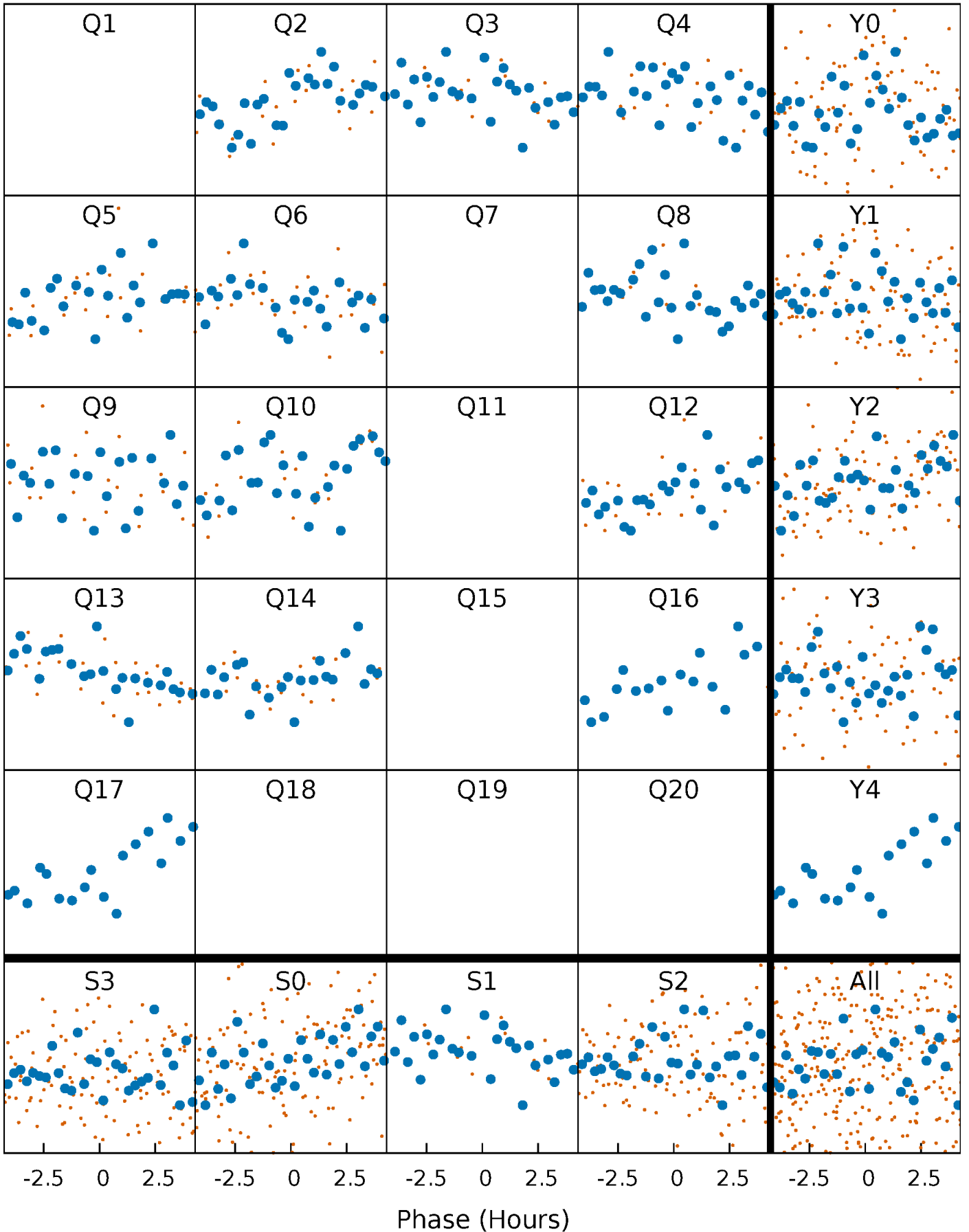


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



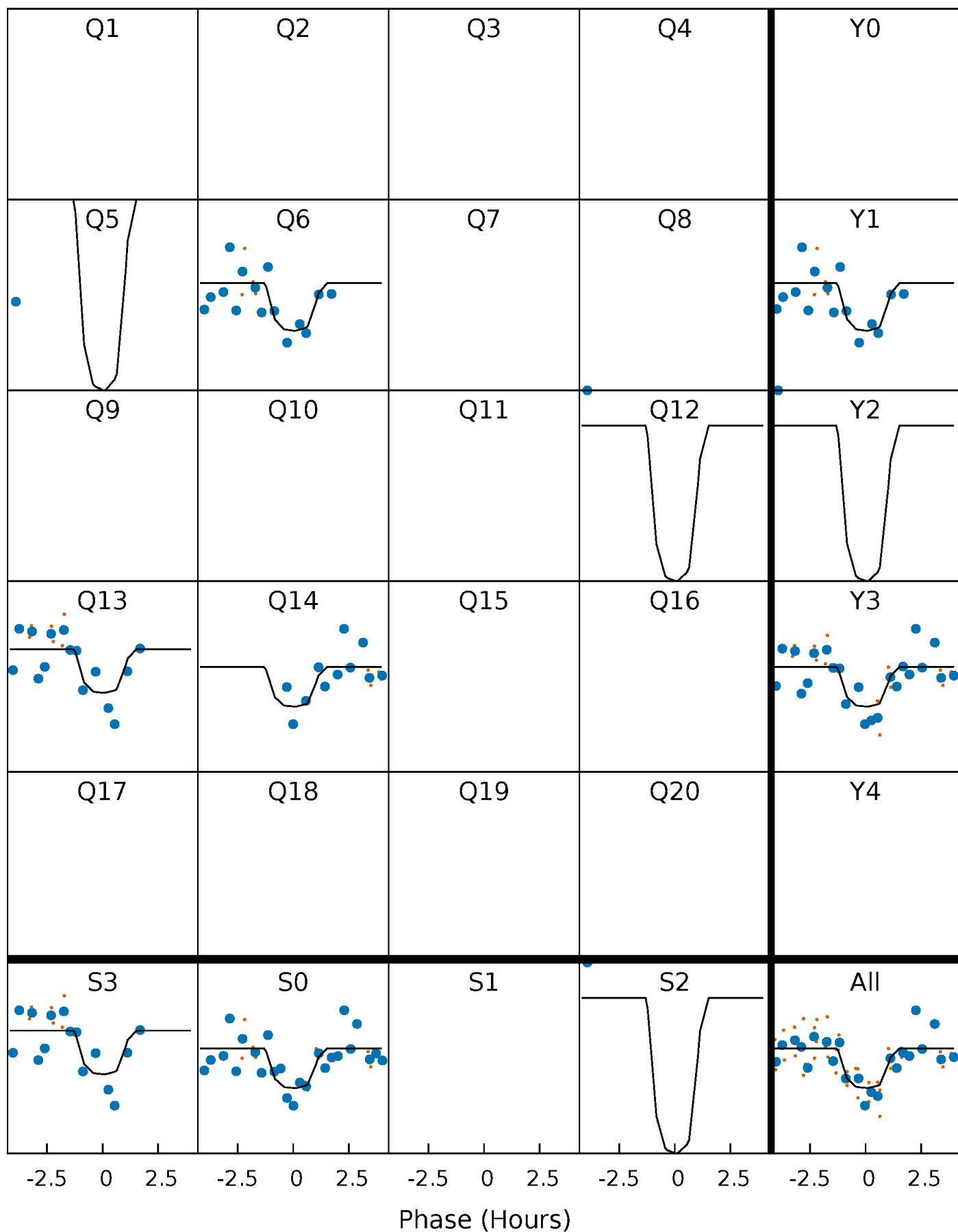
PDC Quarter-Phased Transit Curves

TCE 010620386-02 P= 44.080619 Days $T_0=166.027942$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 010620386-02 P= 44.080619 Days $T_0=166.027942$ (BKJD)

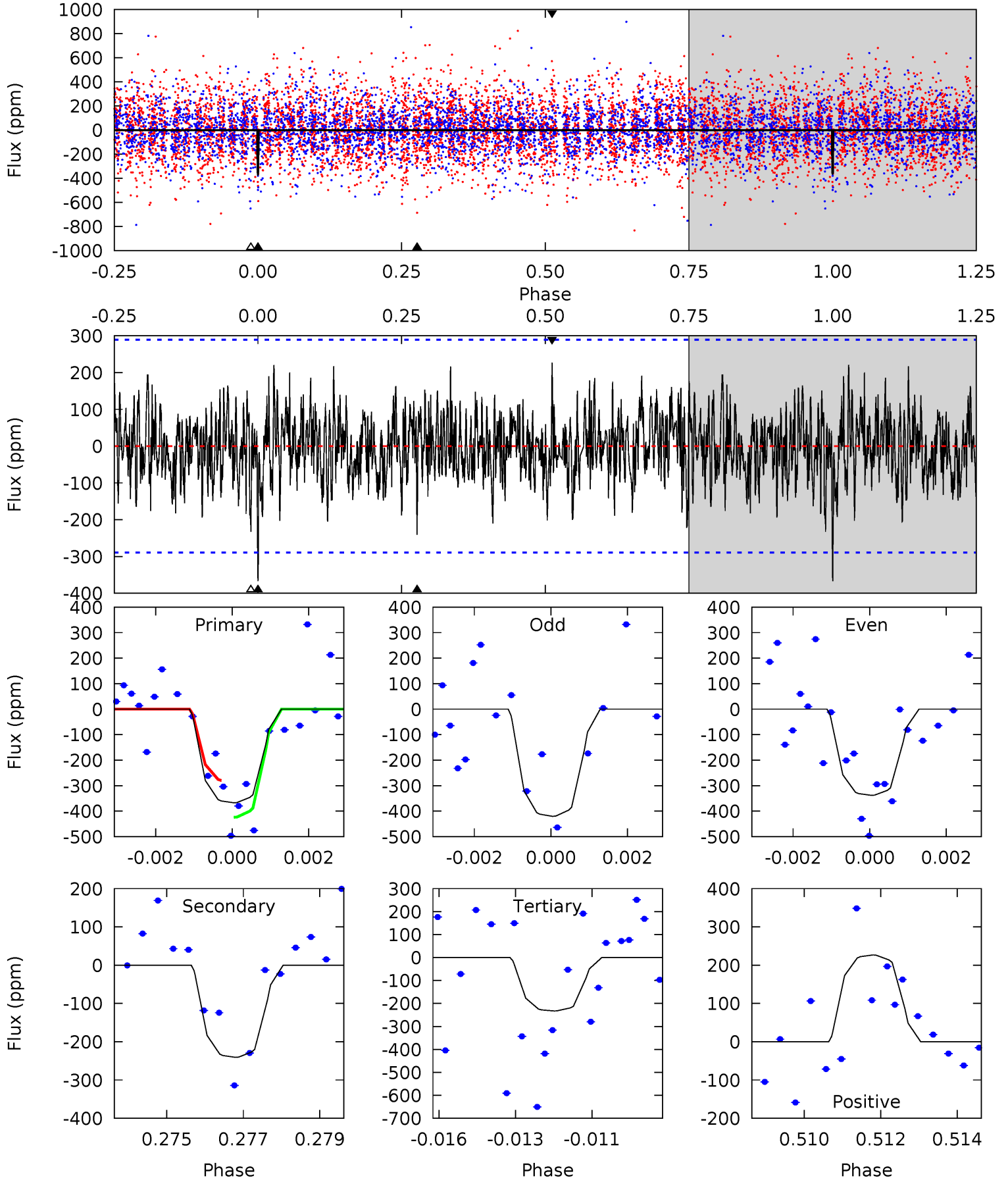


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

010620386-02, P = 44.080619 Days, E = 121.947323 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.74	4.42	4.27	4.16	5.31	3.06	1.32	2.47	2.58	0.15	0.26	0.75	1.03	0.38	1.32



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 010620386

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6760^{+189}_{-236}	$4.187^{+0.158}_{-0.175}$	$-0.340^{+0.250}_{-0.300}$	$1.482^{+0.410}_{-0.336}$	$1.237^{+0.170}_{-0.208}$	$0.536^{+0.500}_{-0.263}$
	+3%/-3%	+4%/-4%	+74%/-88%	+28%/-23%	+14%/-17%	+93%/-49%
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 010620386-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-241 ± 54	$7.00^{+6.34}_{-4.85}$	994^{+69}_{-63}	4276^{+2758}_{-841}	185^{+1627}_{-137}
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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

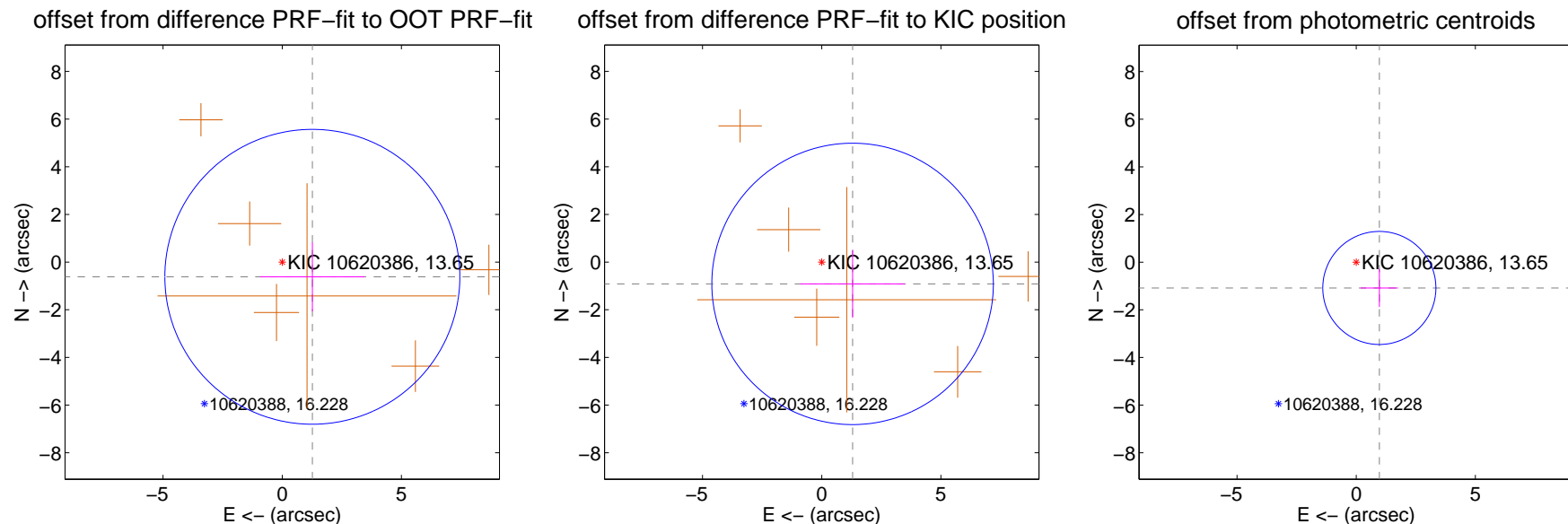
DV Centroid Data

Supplemental centroid analysis for 010620386-02. Kepler magnitude: 13.65. Transit SNR 11.50

There are 0 quarters with good PRF difference image offsets

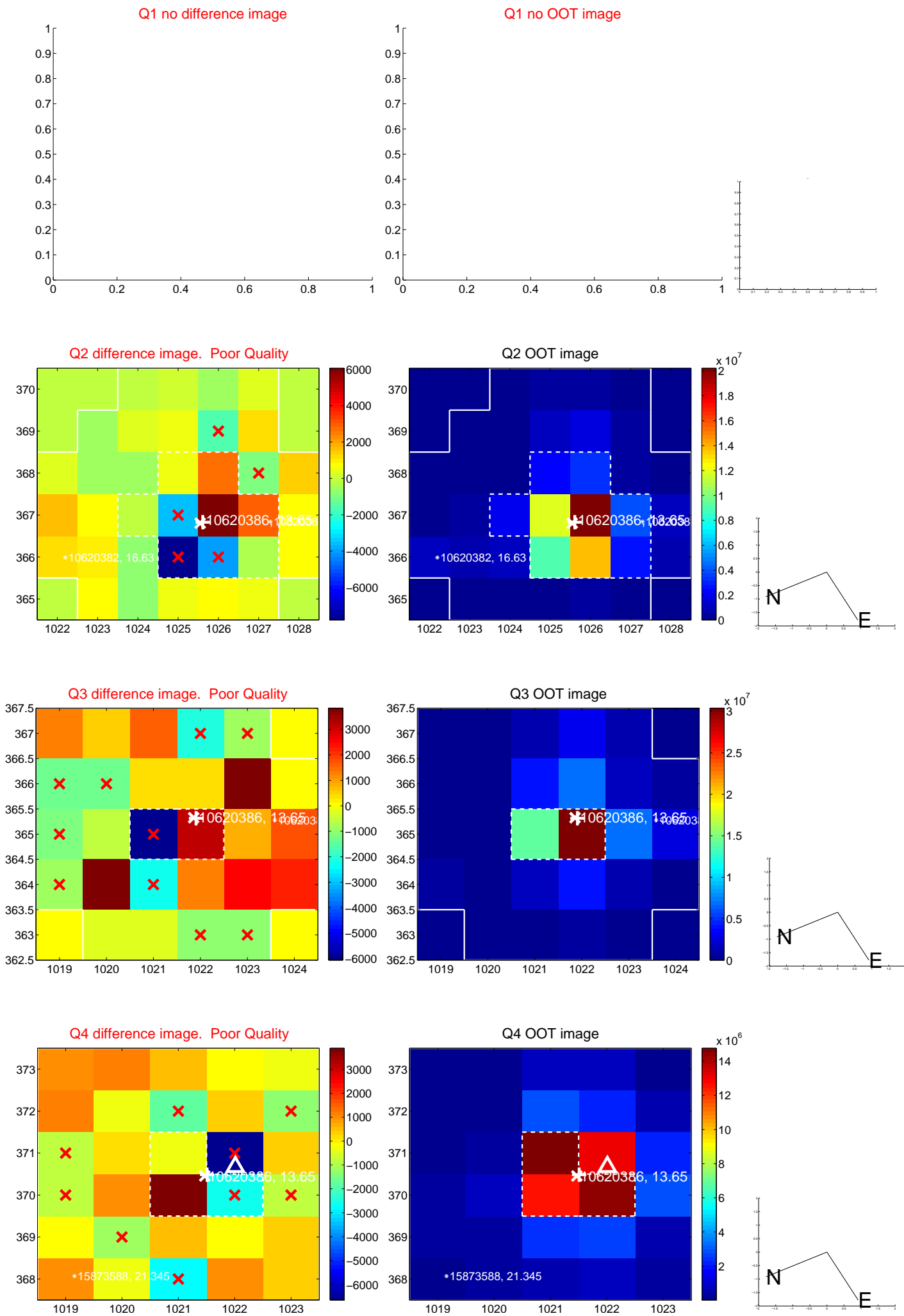
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.406 ± 2.062	0.68	-1.264 ± 2.184	-0.617 ± 1.445
PRF-fit source offset from KIC position	1.586 ± 1.968	0.81	-1.295 ± 2.192	-0.915 ± 1.418
photometric centroid source offset	1.45 ± 0.79	1.84	-0.97 ± 0.78	-1.08 ± 0.80

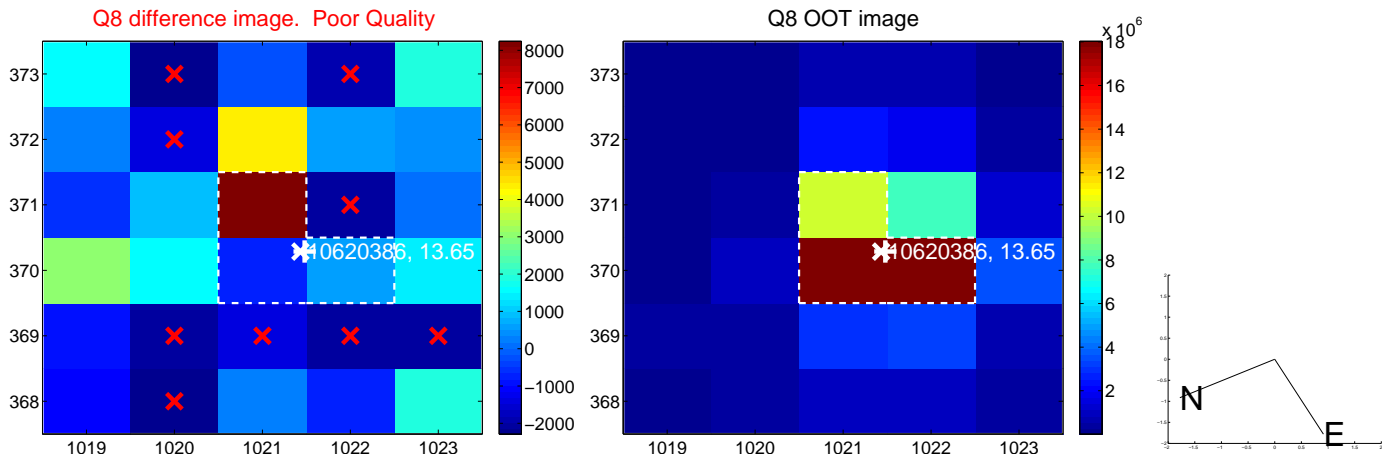
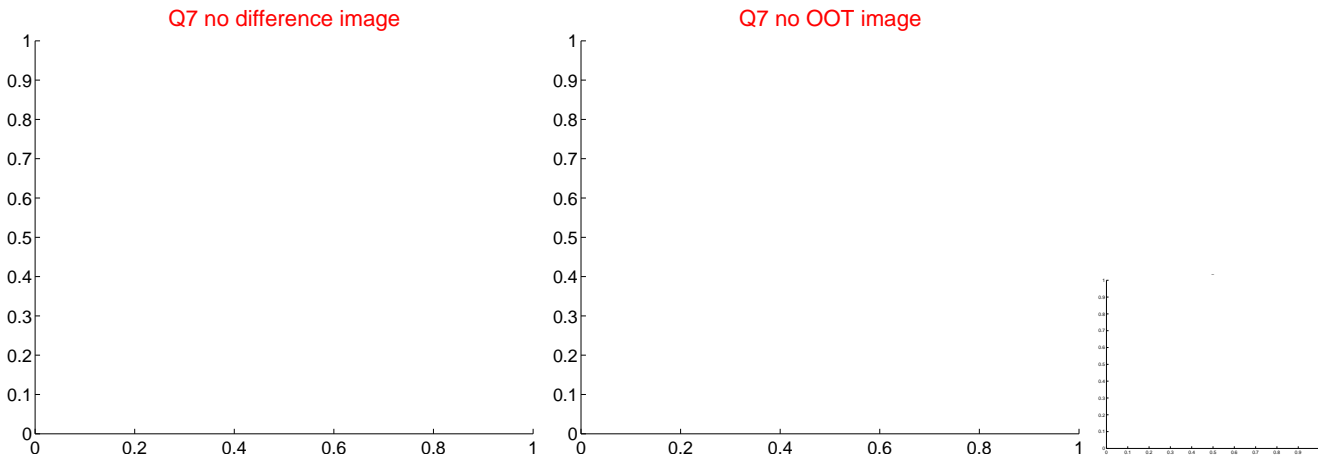
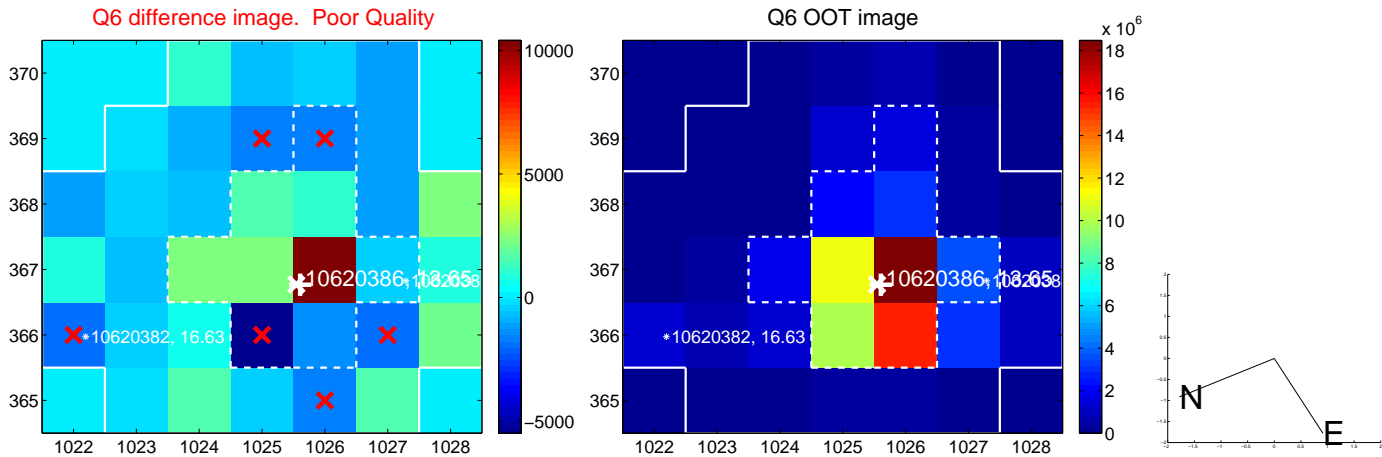
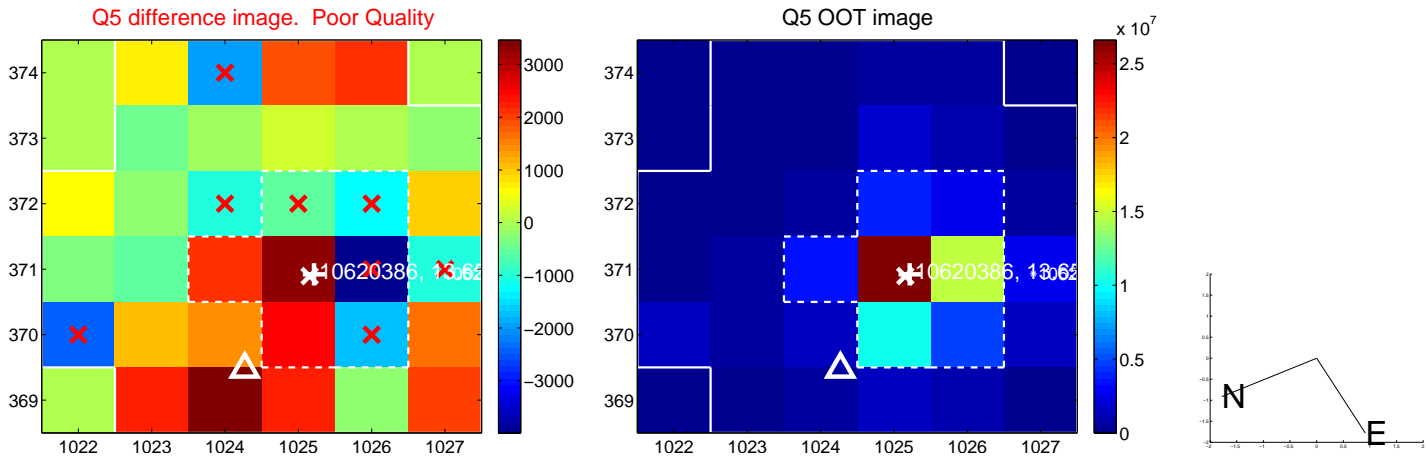


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

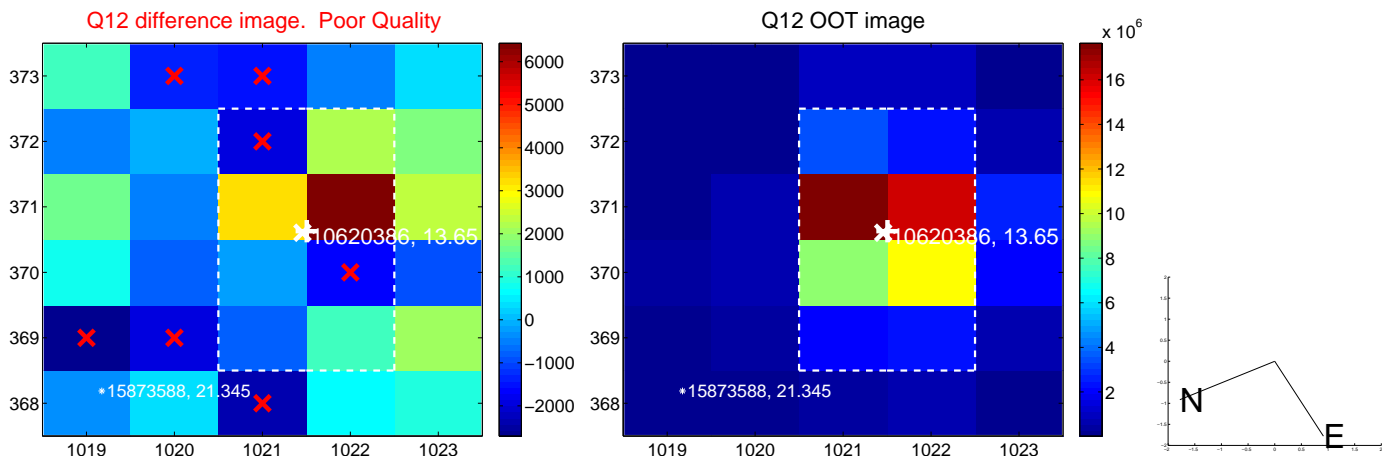
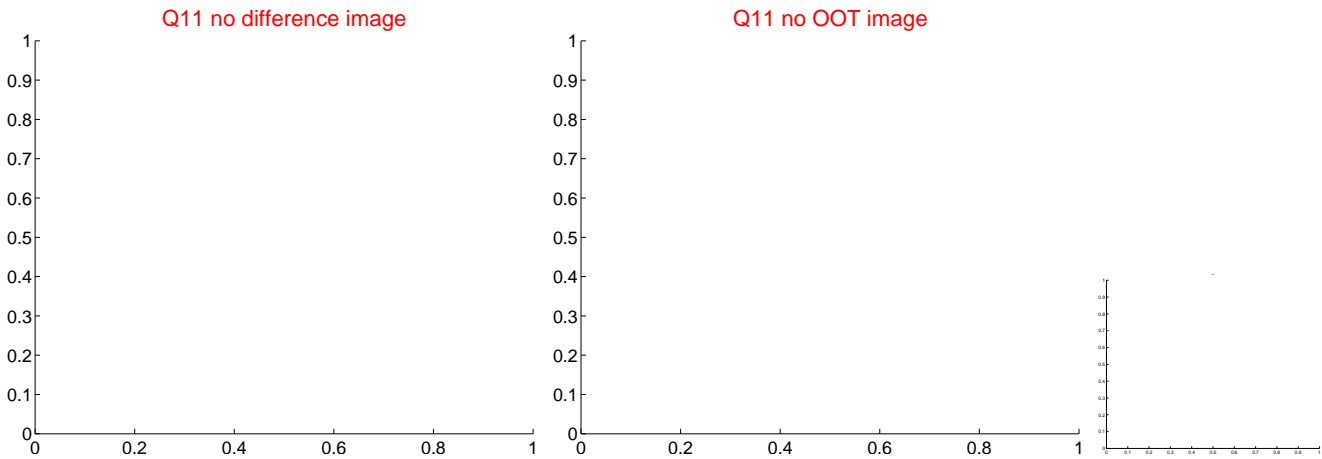
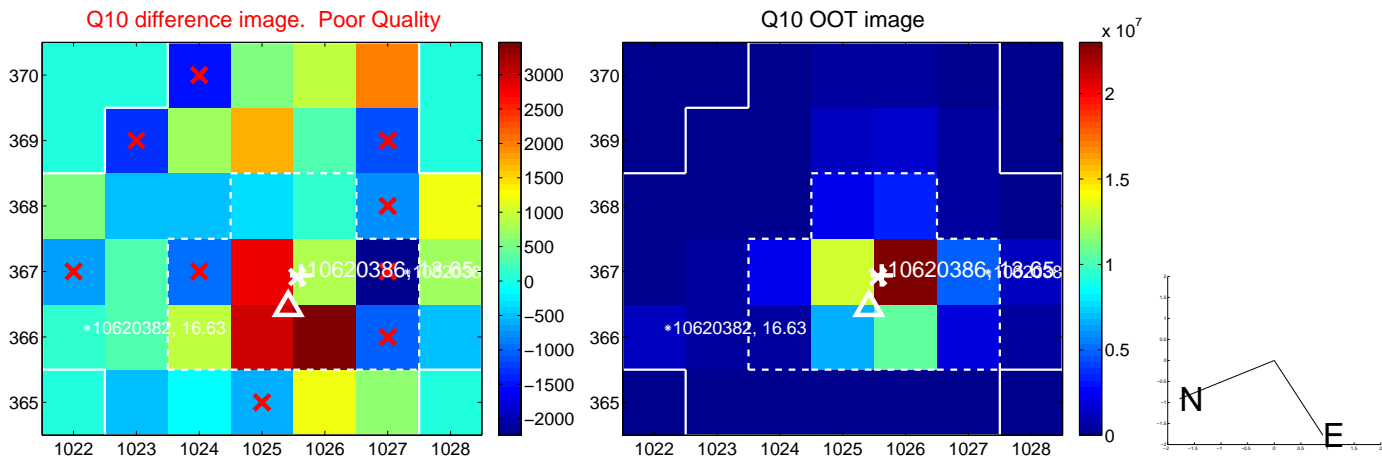
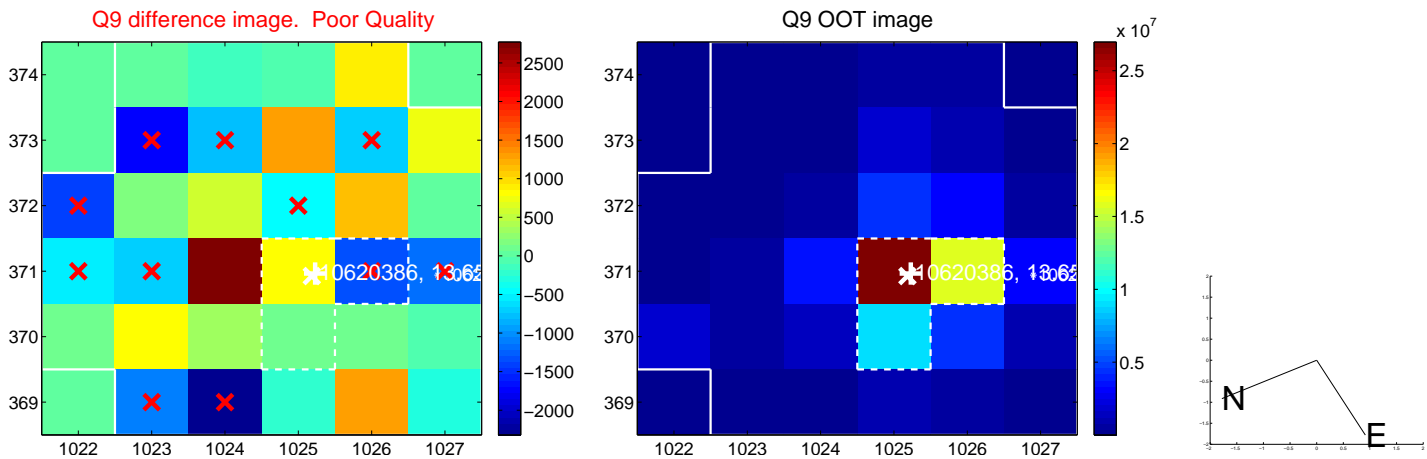
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



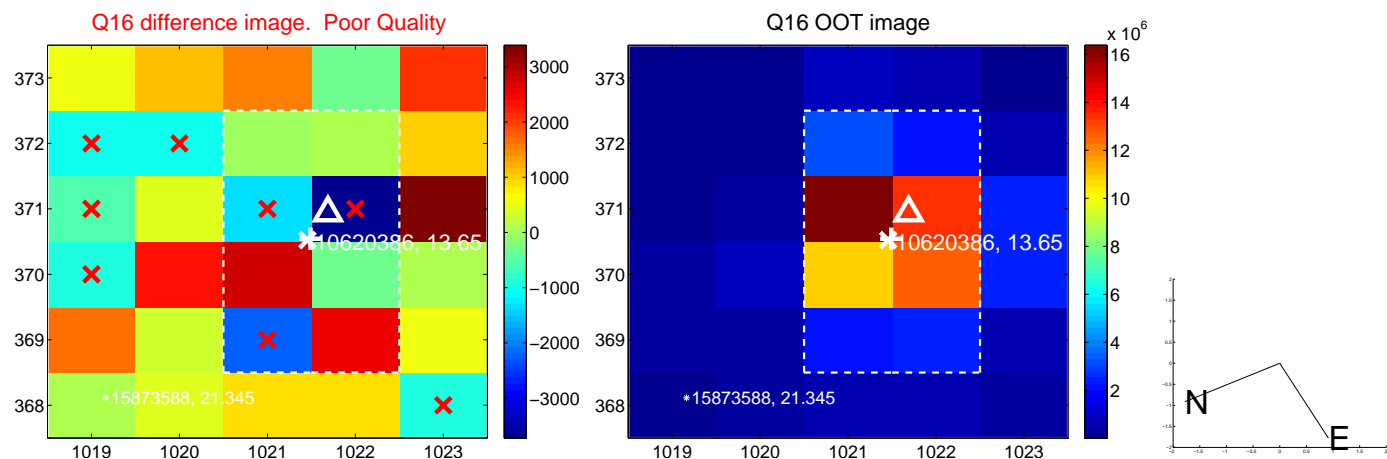
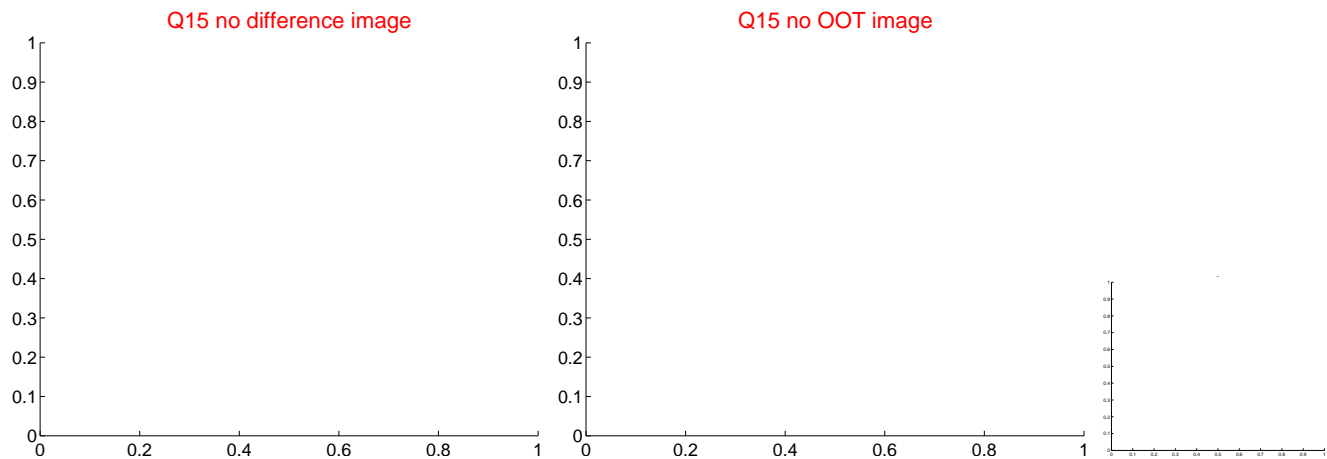
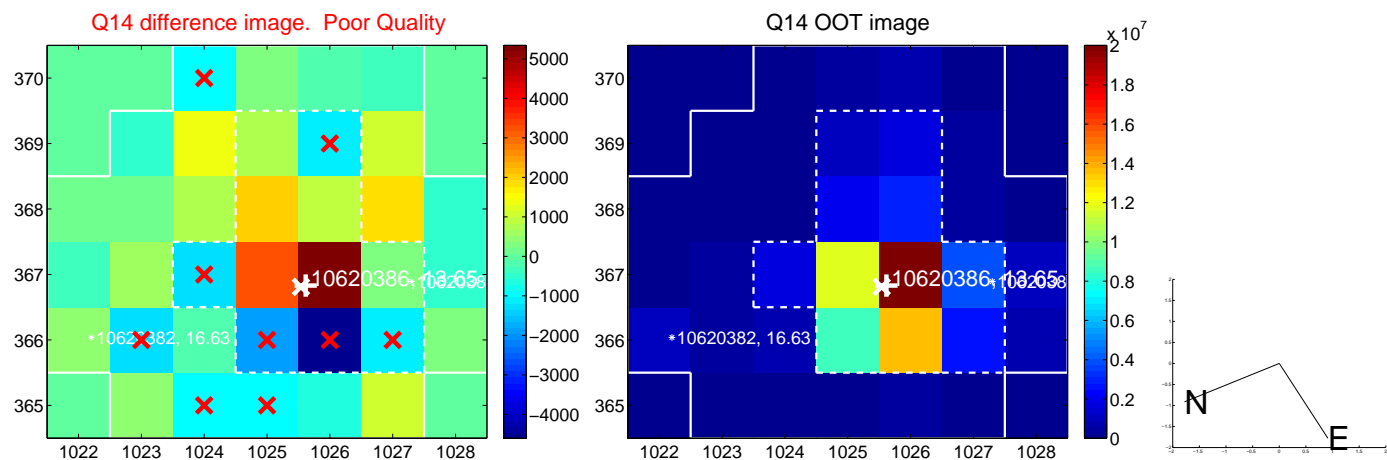
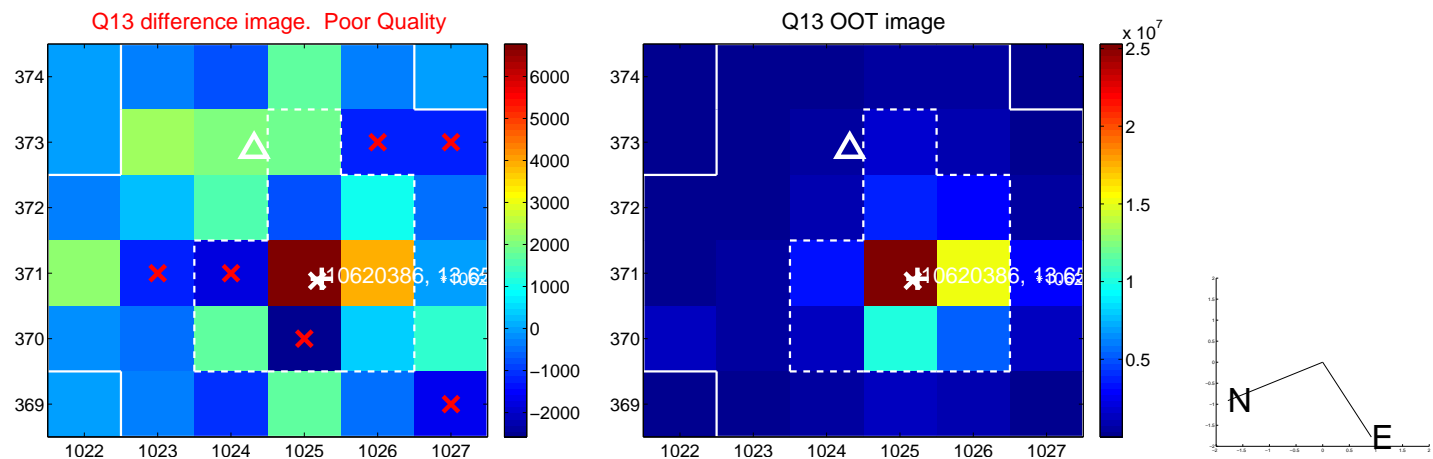
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



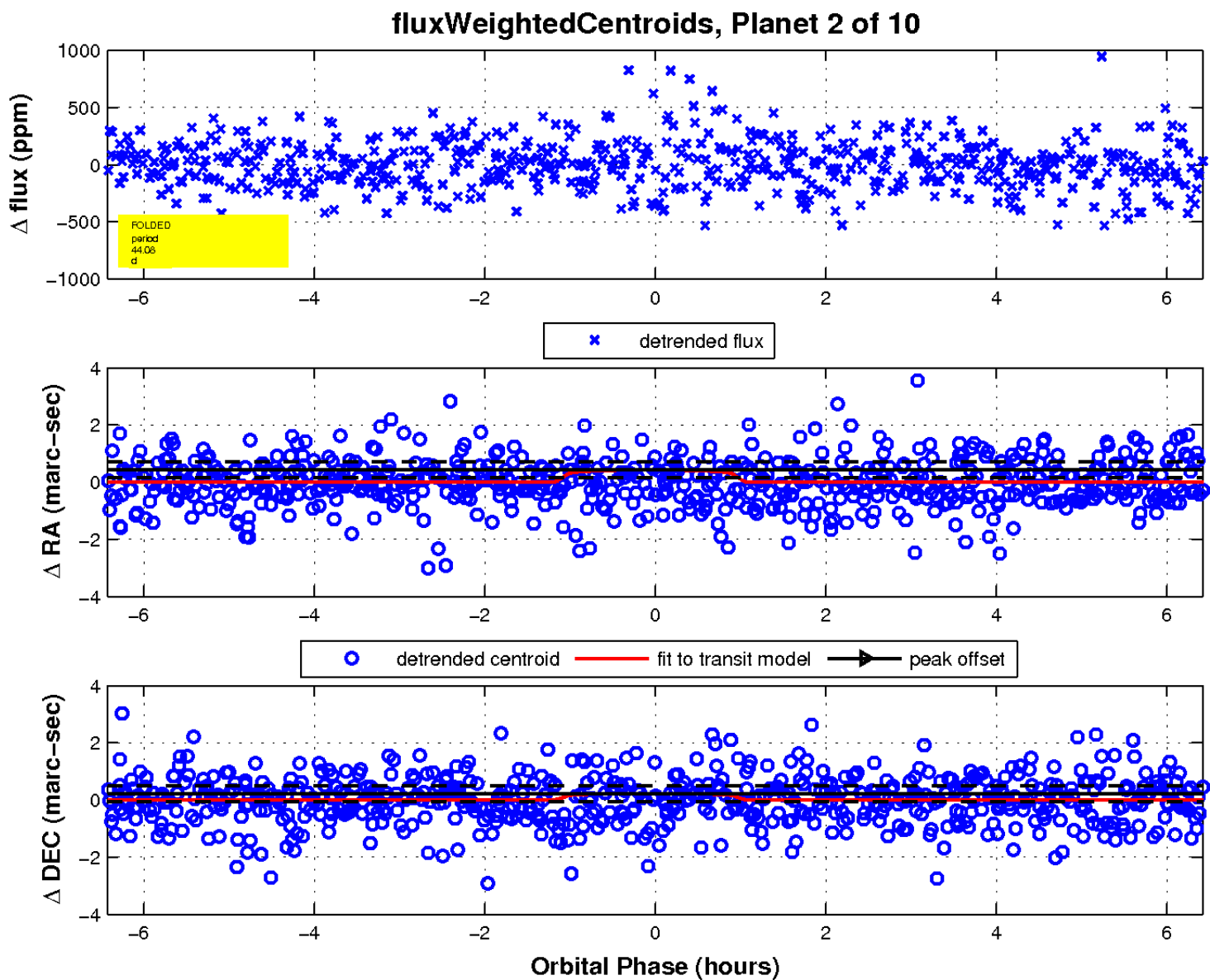
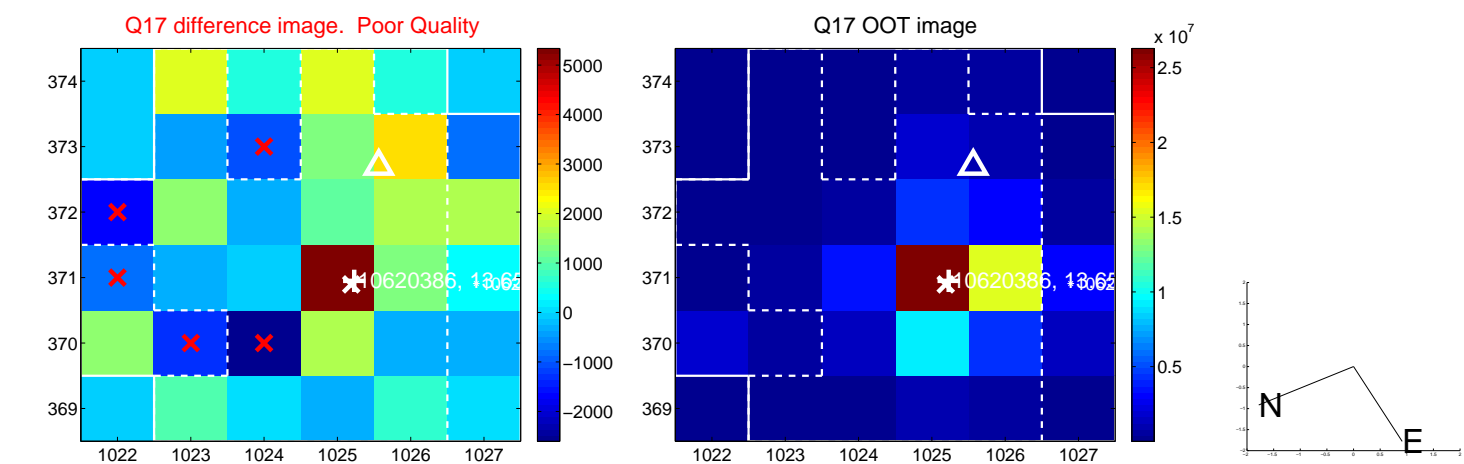
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

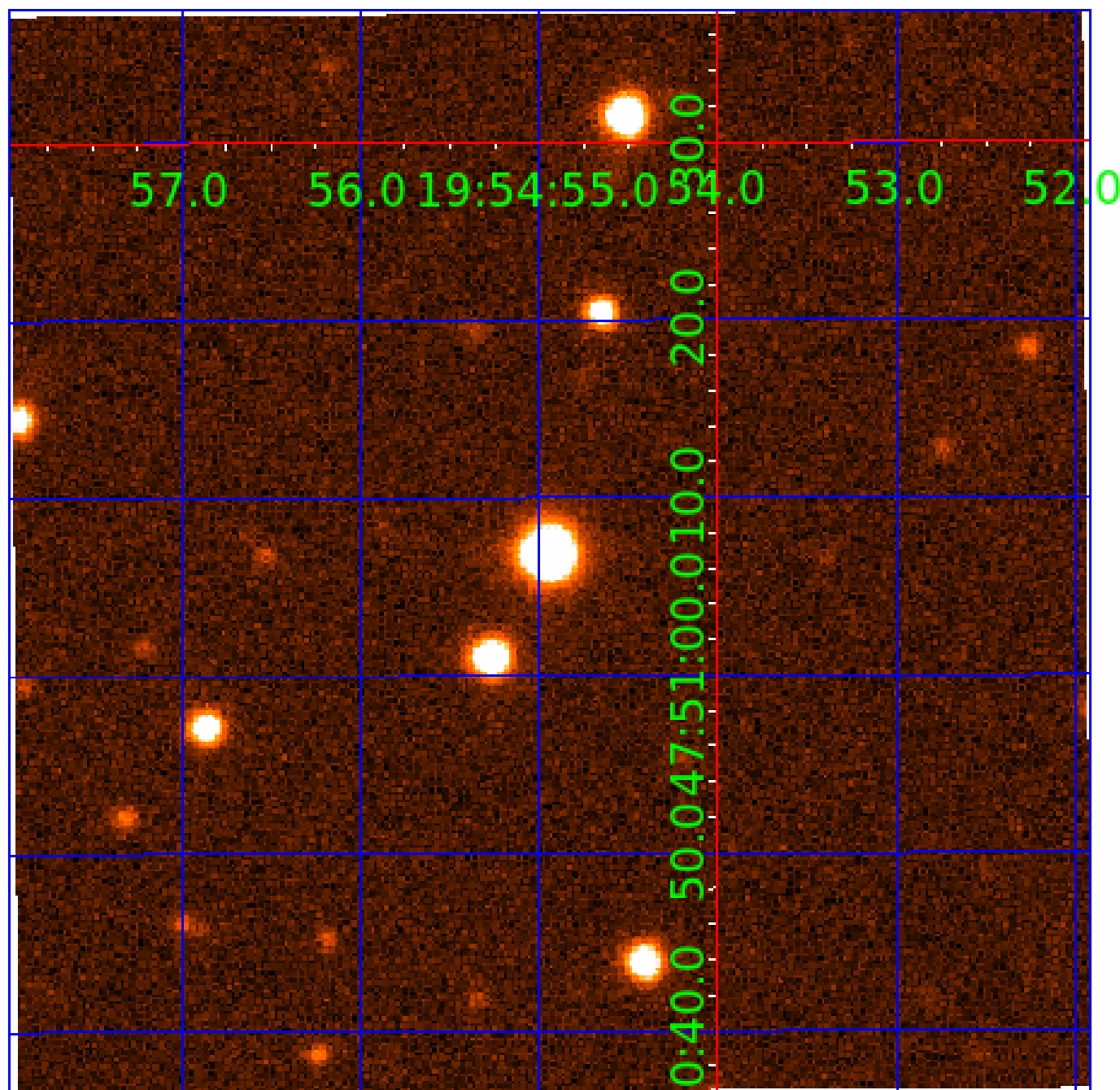


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
010620386-01	OBS	No	1.767922	132.121428	5.8	12.225	7.9	2.4	1.48	6760	0.38	4364.78
010620386-02	OBS	No	44.080619	166.027943	343.6	2.145	12.5	11.5	1.48	6760	2.95	59.92
010620386-03	OBS	No	48.202635	163.525750	465.8	2.026	11.2	9.4	1.48	6760	3.40	53.19
010620386-04	OBS	No	22.111977	133.011494	313.4	2.066	11.3	10.7	1.48	6760	2.94	150.34
010620386-05	OBS	No	157.912847	247.435004	263.1	5.144	9.8	9.7	1.48	6760	2.71	10.93
010620386-06	OBS	No	282.834750	152.515978	274.3	3.433	8.8	9.1	1.48	6760	2.72	5.03
010620386-07	OBS	No	18.357959	145.864348	253.8	2.290	10.9	10.9	1.48	6760	2.41	192.67
010620386-08	OBS	No	16.002501	147.312204	275.0	2.385	9.2	8.6	1.48	6760	2.77	231.38
010620386-09	OBS	No	35.872668	147.147565	262.3	3.732	8.5	8.7	1.48	6760	2.65	78.87
010620386-10	OBS	No	23.456372	140.582661	266.4	2.684	8.4	7.5	1.48	6760	2.82	138.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010620386-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010620386-09	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
010620386-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

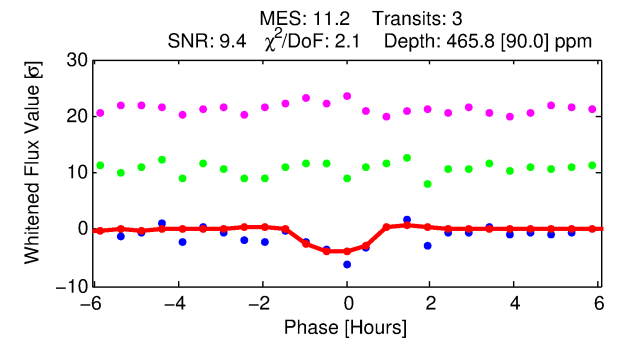
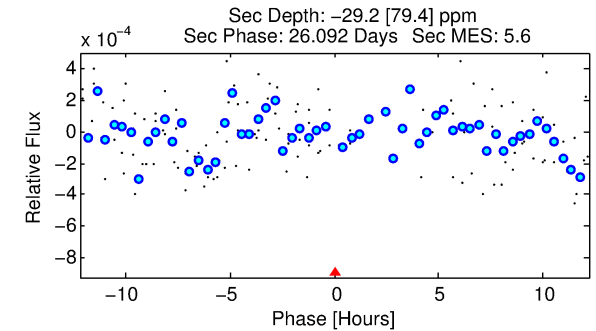
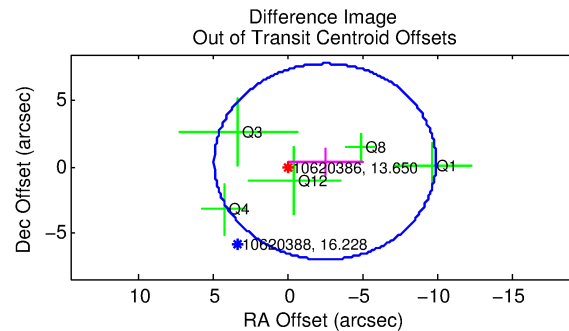
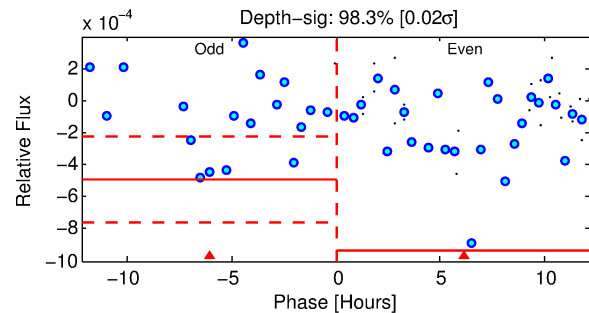
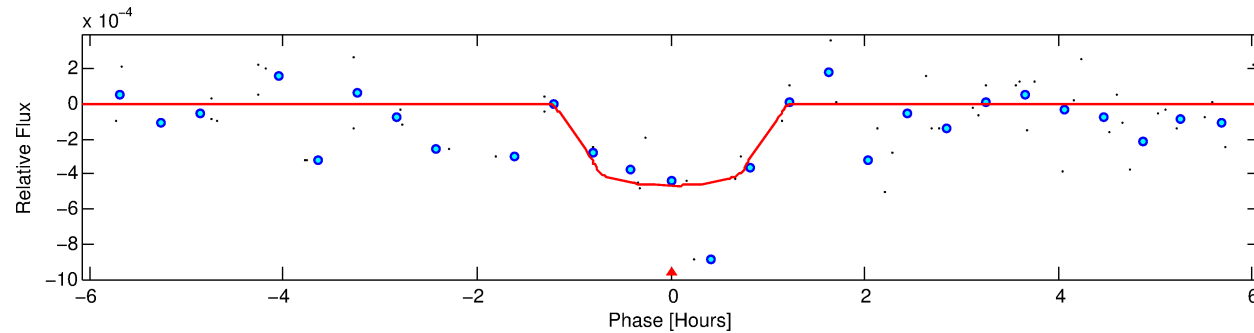
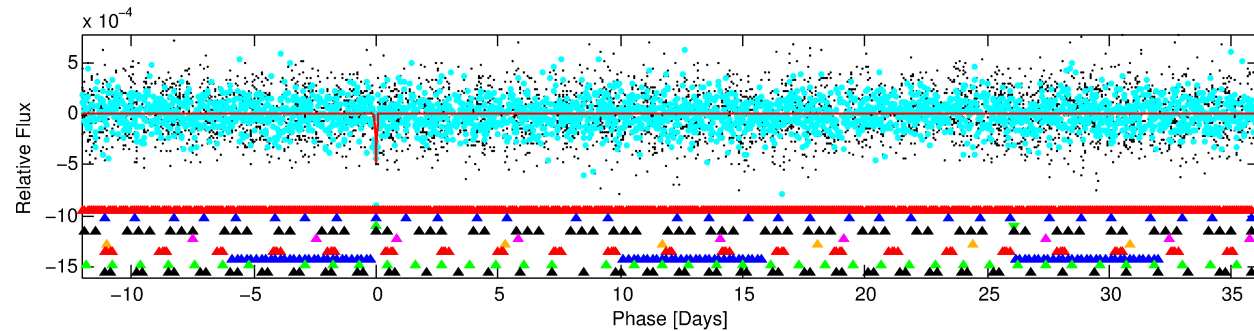
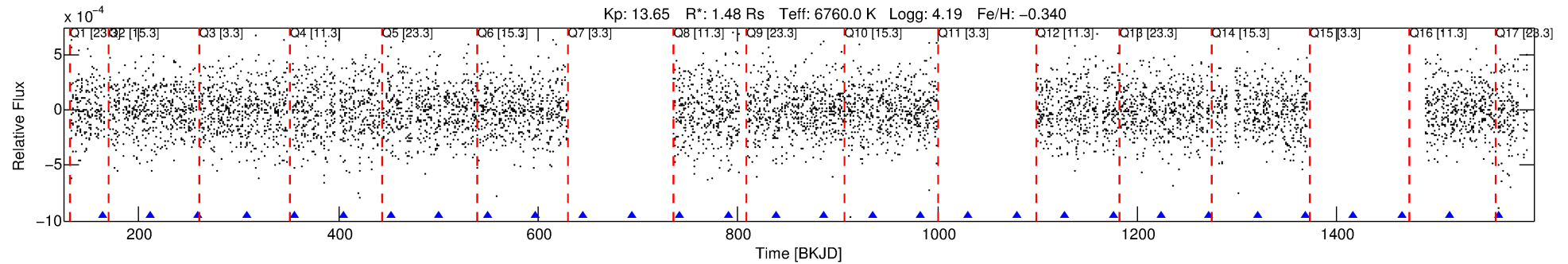
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010620386-03

No Significant Match Found

DV One-Page Summary

KIC: 10620386 Candidate: 3 of 10 Period: 48.203 d



DV Fit Results:

Period = 48.20264 [0.00087] d
Epoch = 163.5257 [0.0151] BKJD
Rp/R* = 0.0210 [0.0353]
a/R* = 142.02 [1342.83]
b = 0.66 [8.19]
Seff = 53.19 [18.86]
Teq = 689 [61] K
Rp = 3.40 [5.78] Re
a = 0.2780 [0.0634] AU
Ag = N/A
Teffp = N/A

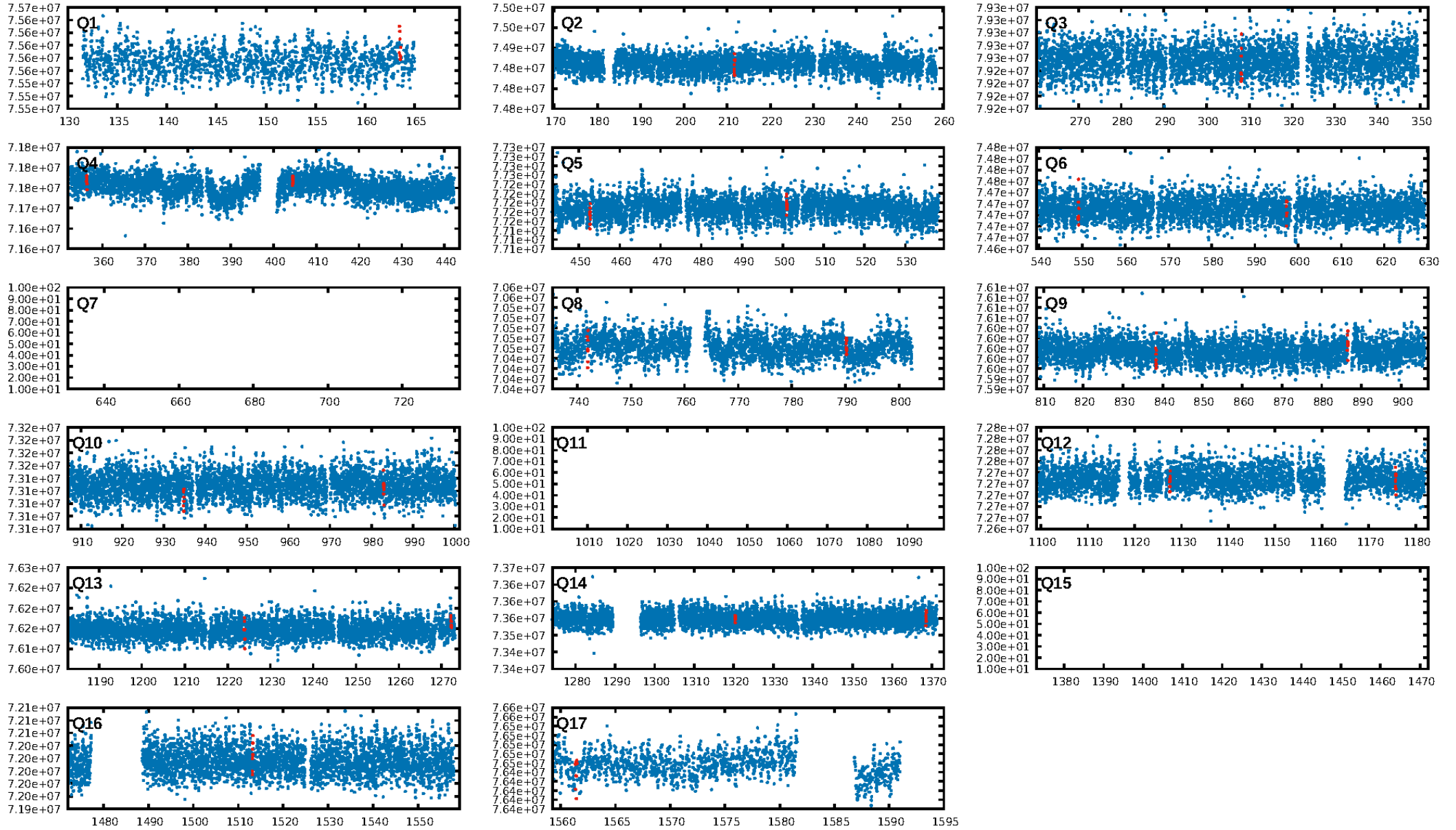
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [33.53σ]
LongPeriod-sig: 100.0% [476.22σ]
ModelChiSquare2-sig: 99.5%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 5.84e-11
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -1.263
Centroid-sig: 36.3%
Centroid-so: 1.058 arcsec [1.74σ]
OotOffset-rm: 2.565 arcsec [1.04σ]
KicOffset-rm: 2.510 arcsec [1.01σ]
OotOffset-st: 0/1/3/1 [5]
KicOffset-st: 0/1/3/1 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 0.43 [6/14]

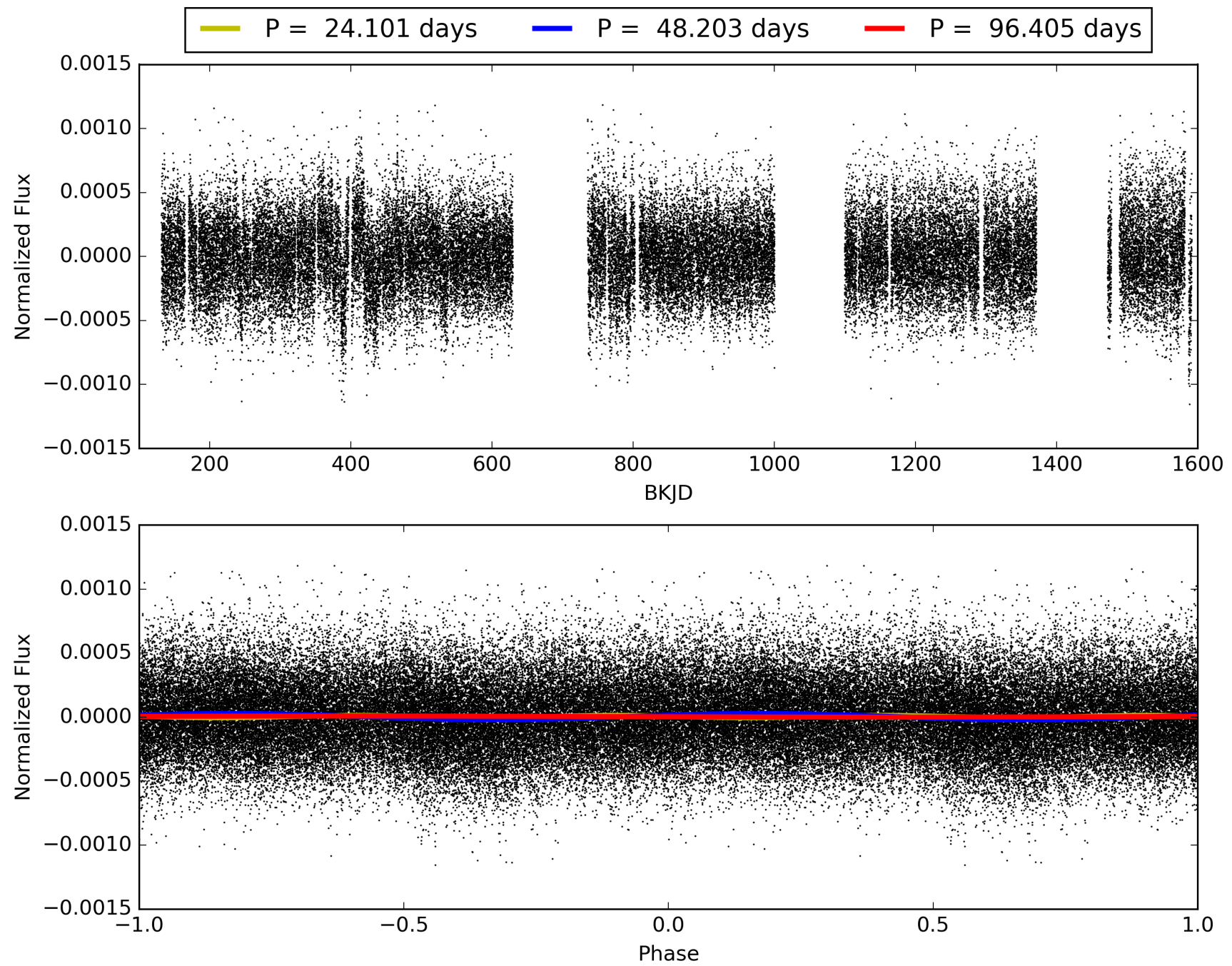
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:19:52 Z

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

TCE 010620386-03, PDC Light Curves

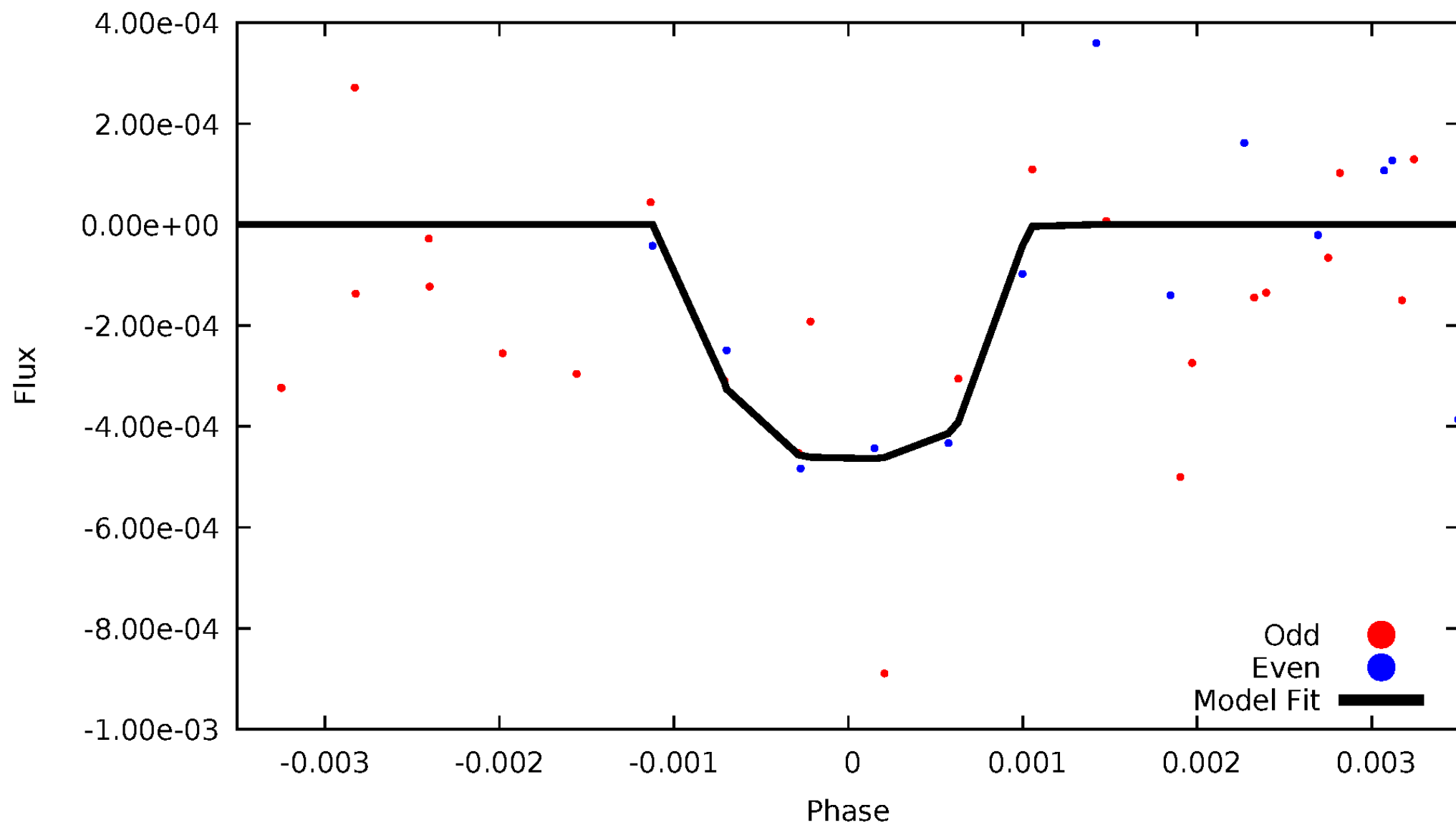


TCE 010620386-03



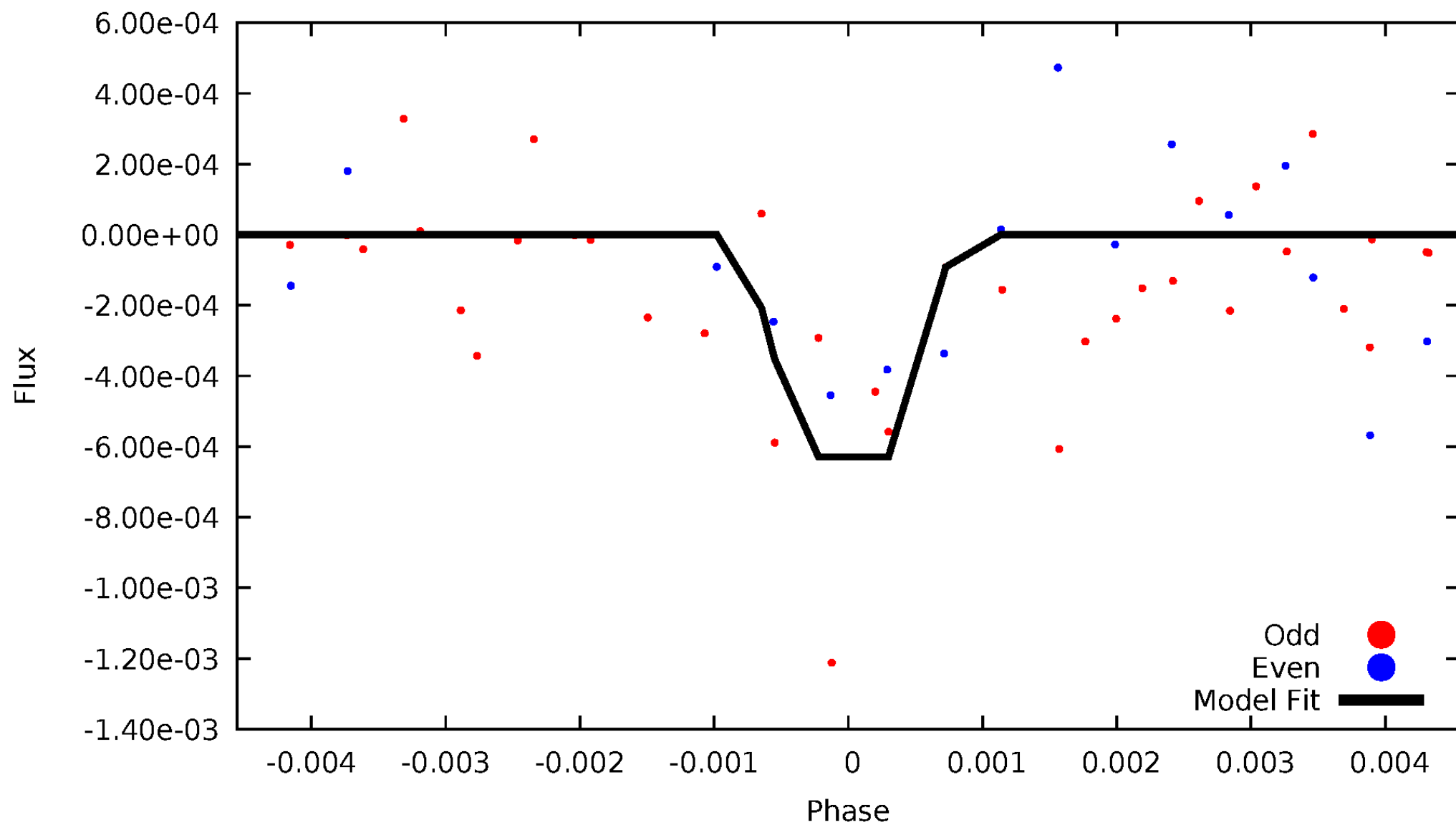
DV Odd/Even

TCE 010620386-03



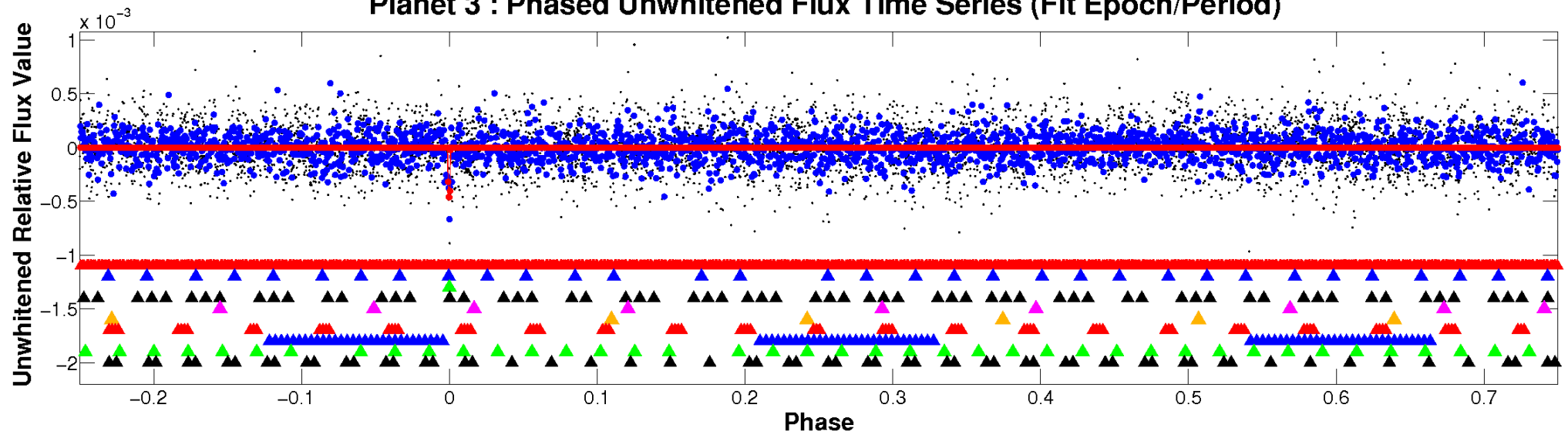
ALT Odd/Even

TCE 010620386-03

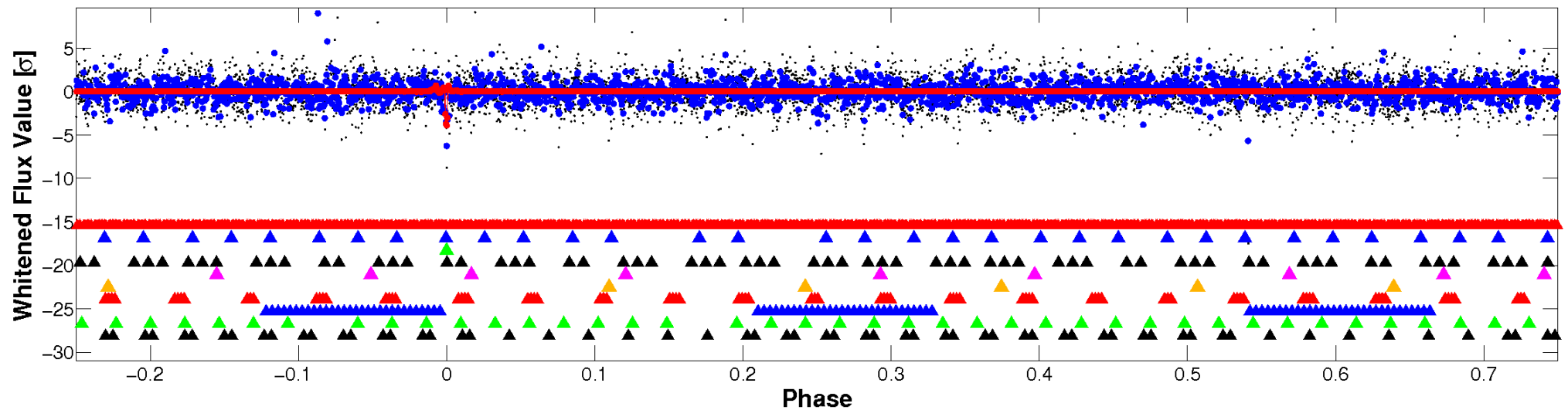


Non-Whitened Vs. Whitened Light Curve

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

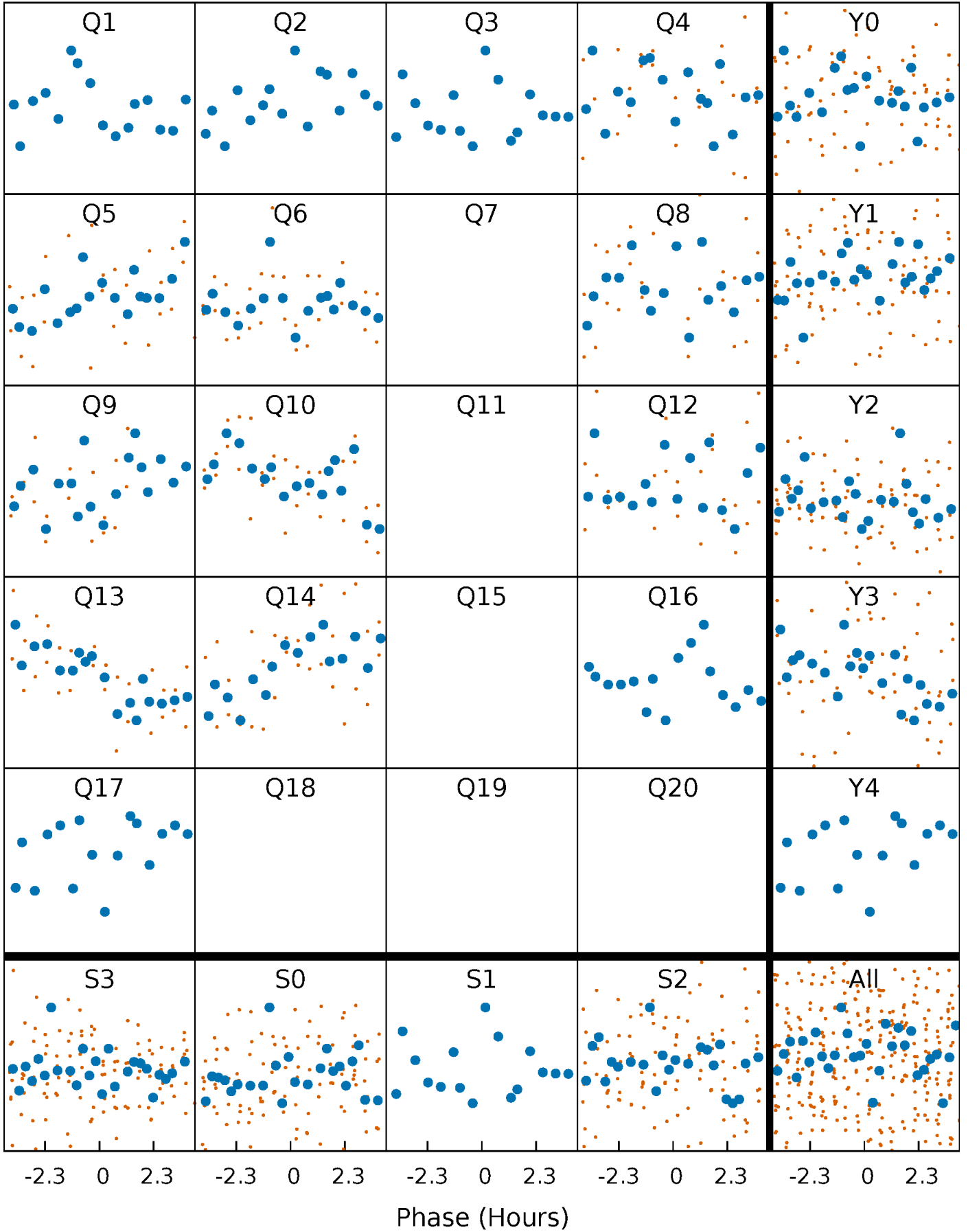


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



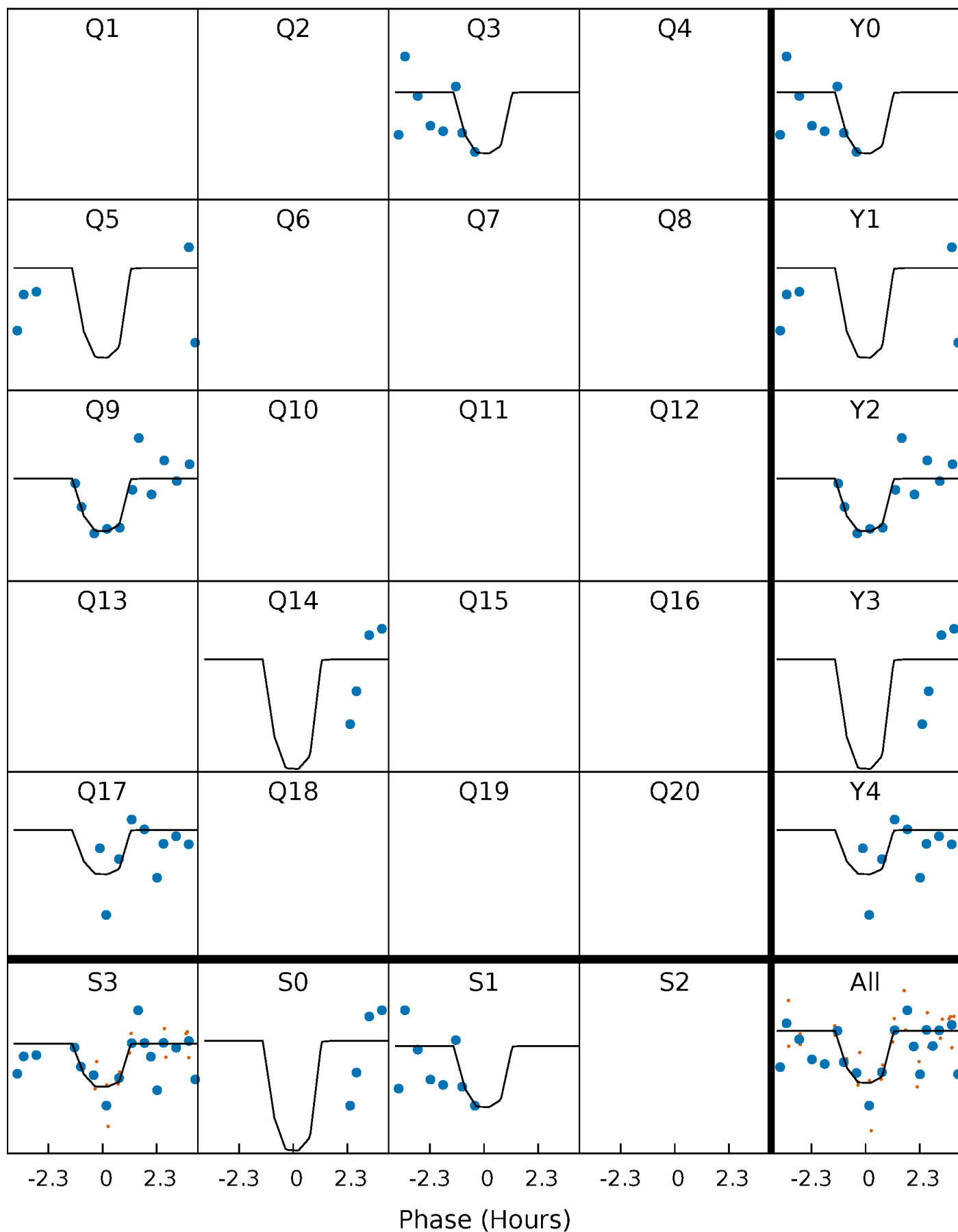
PDC Quarter-Phased Transit Curves

TCE 010620386-03 $P = 48.202635$ Days $T_0 = 163.525750$ (BKJD)



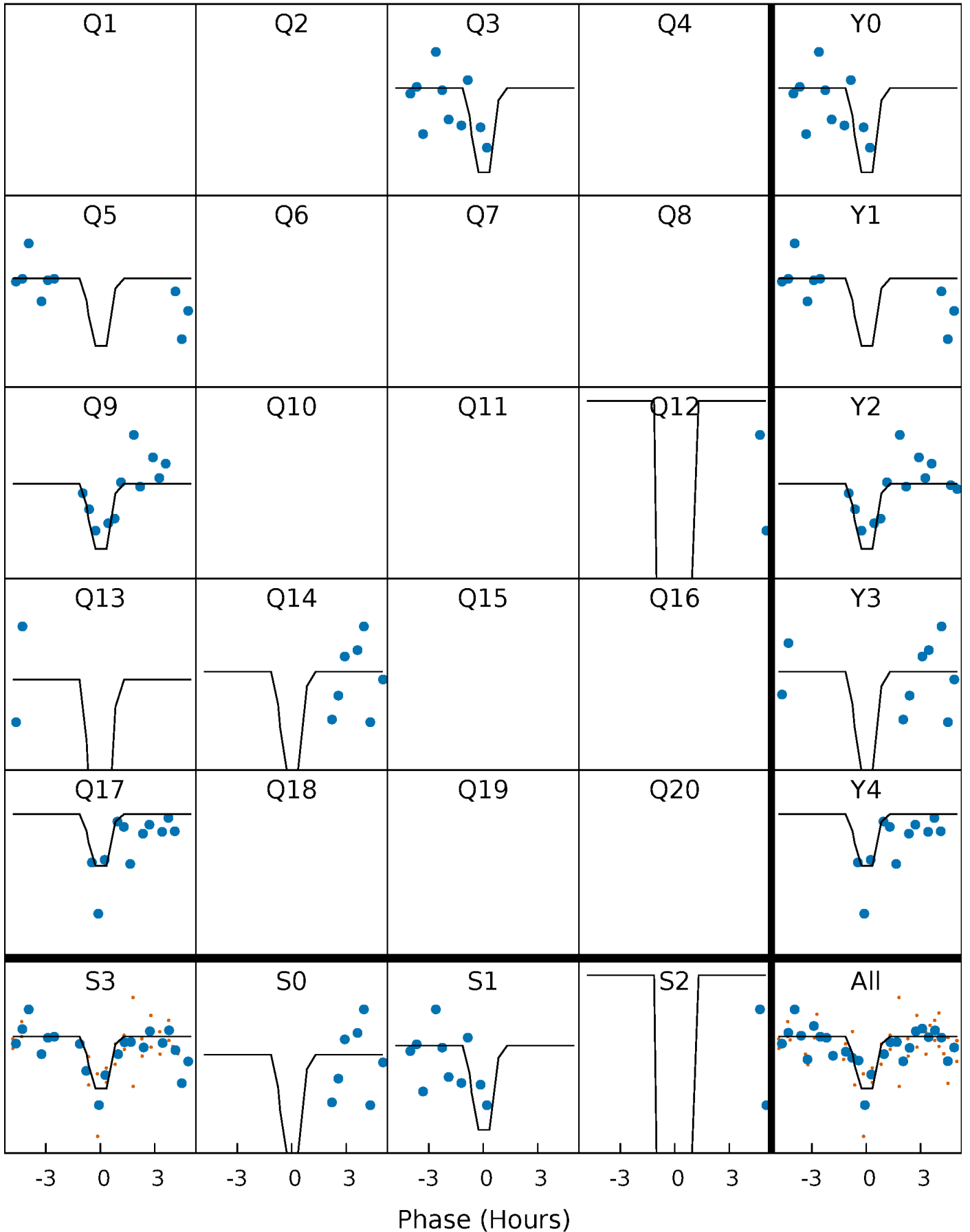
DV Quarter-Phased Transit Curves

TCE 010620386-03 $P = 48.202635$ Days $T_0 = 163.525750$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

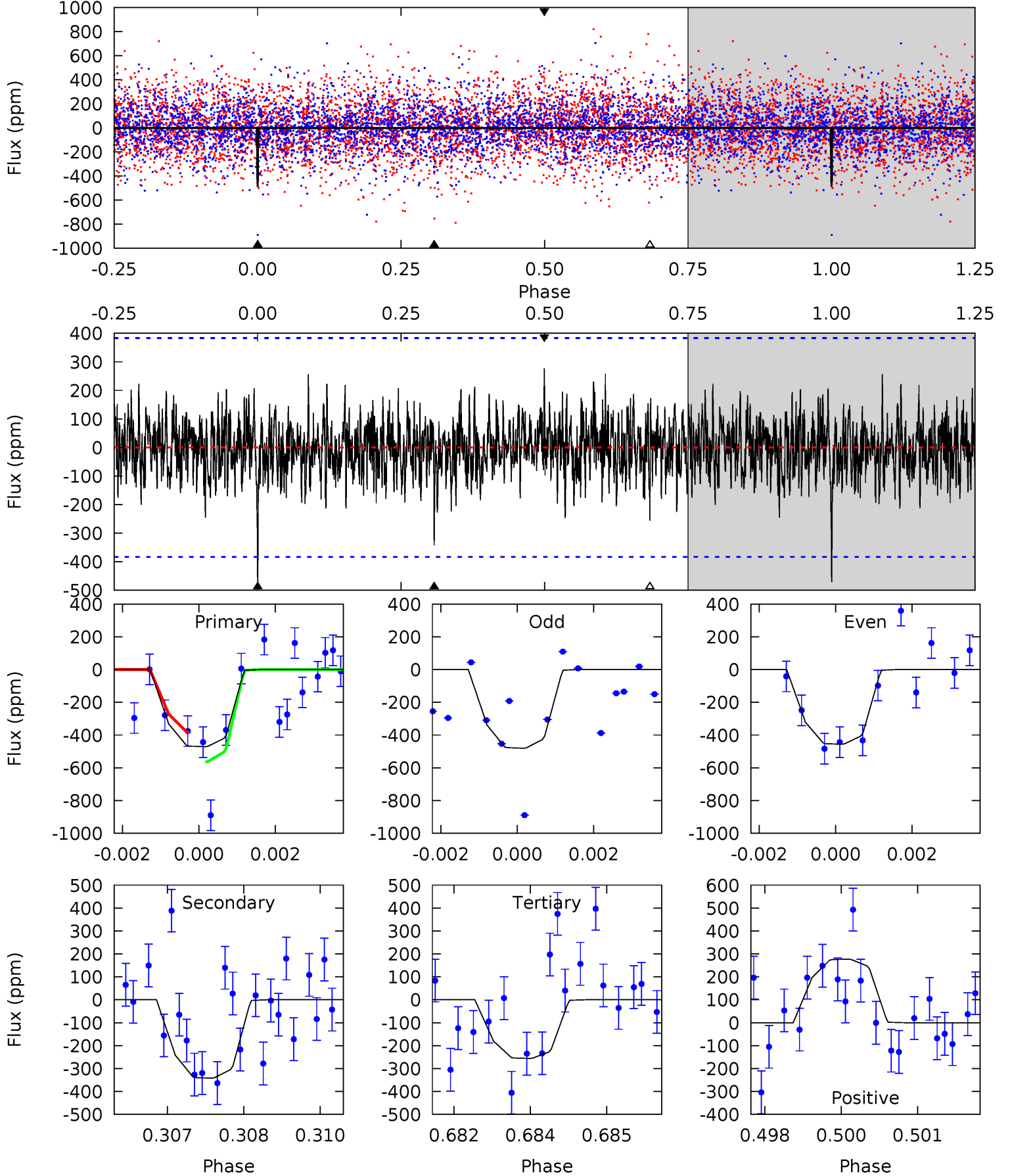
TCE 010620386-03 $P = 48.204151$ Days $T_0 = 163.497752$ (BKJD)



DV Model-Shift Uniqueness Test

010620386-03, P = 48.202635 Days, E = 115.323115 Days

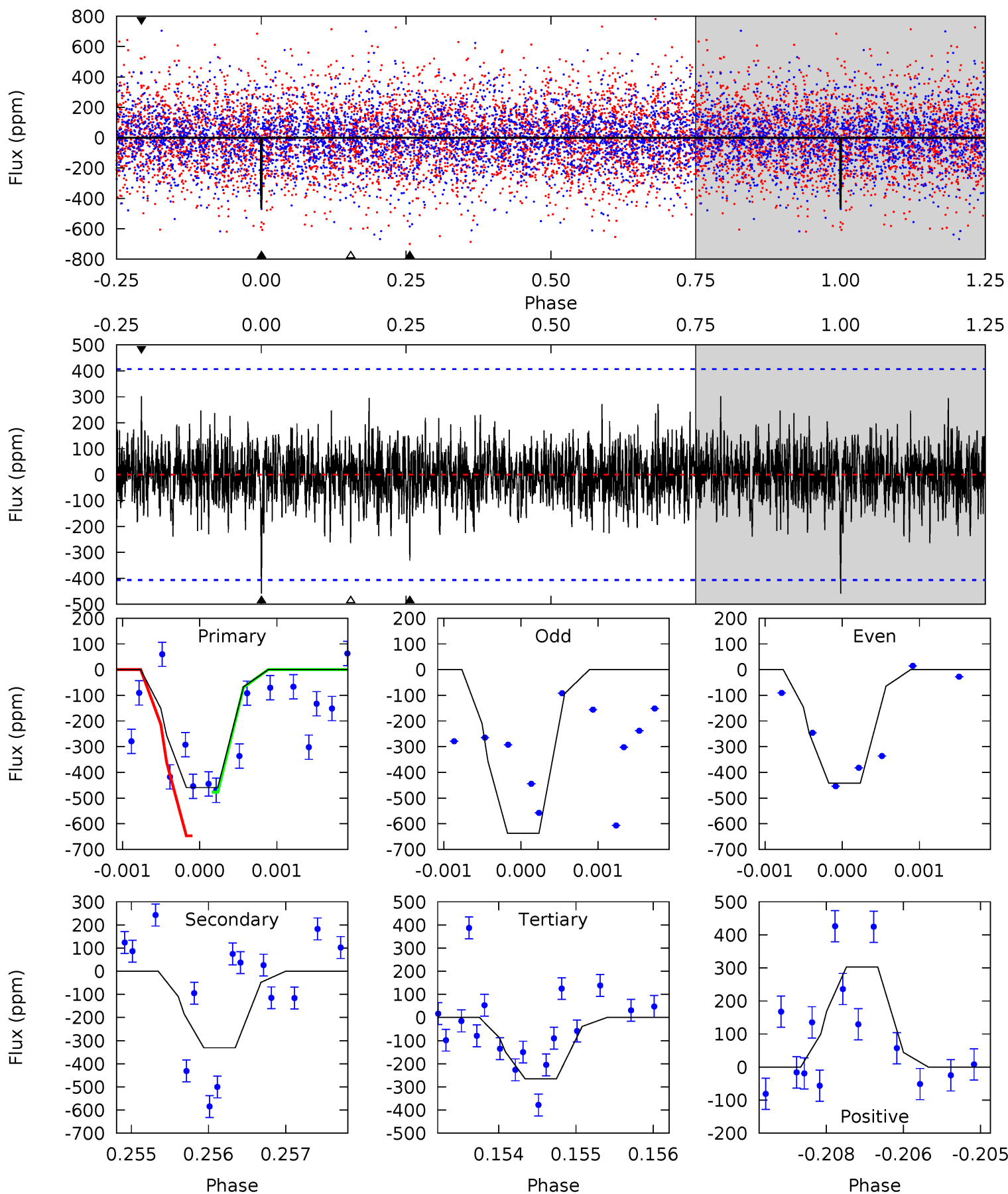
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.58	4.78	3.57	3.87	5.35	3.13	1.09	3.01	2.71	1.20	0.91	0.18	1.02	0.37	1.23



Alt Model-Shift Uniqueness Test

010620386-03, P = 48.204151 Days, E = 115.293601 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.10	4.40	3.52	4.02	5.41	3.22	1.06	2.58	2.08	0.88	0.38	1.34	1.27	0.40	1.21



Stellar Parameters For KIC 010620386

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6760^{+189}_{-236}	$4.187^{+0.158}_{-0.175}$	$-0.340^{+0.250}_{-0.300}$	$1.482^{+0.410}_{-0.336}$	$1.237^{+0.170}_{-0.208}$	$0.536^{+0.500}_{-0.263}$
	+3%/-3%	+4%/-4%	+74%/-88%	+28%/-23%	+14%/-17%	+93%/-49%
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 010620386-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-342 ± 72	$5.48^{+5.53}_{-3.59}$	960^{+80}_{-60}	5041^{+3591}_{-1172}	481^{+3427}_{-367}
Alt.	-331 ± 75	$5.60^{+5.58}_{-3.57}$	961^{+68}_{-60}	4965^{+3508}_{-1134}	464^{+2967}_{-355}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

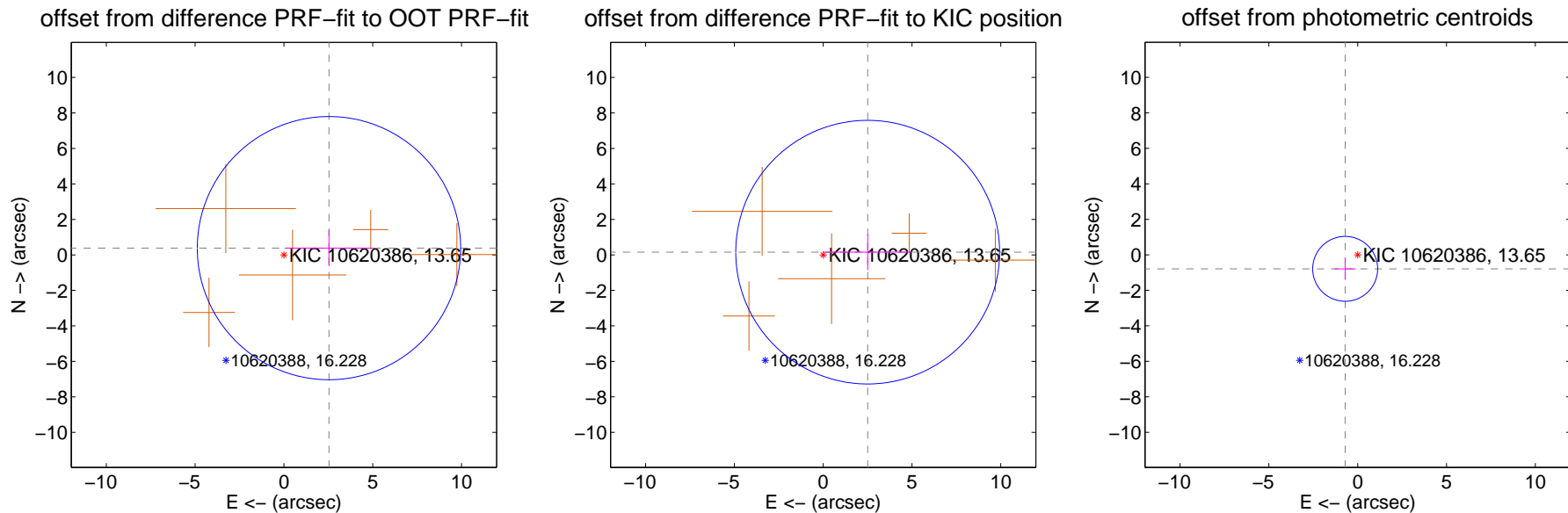
DV Centroid Data

Supplemental centroid analysis for 010620386-03. Kepler magnitude: 13.65. Transit SNR 9.38

There are 0 quarters with good PRF difference image offsets

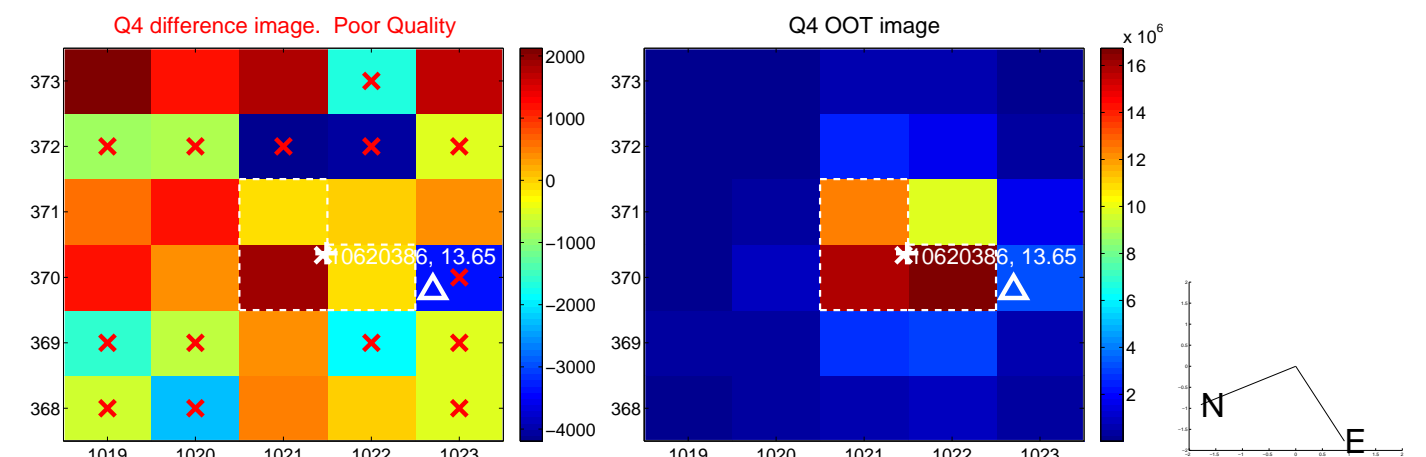
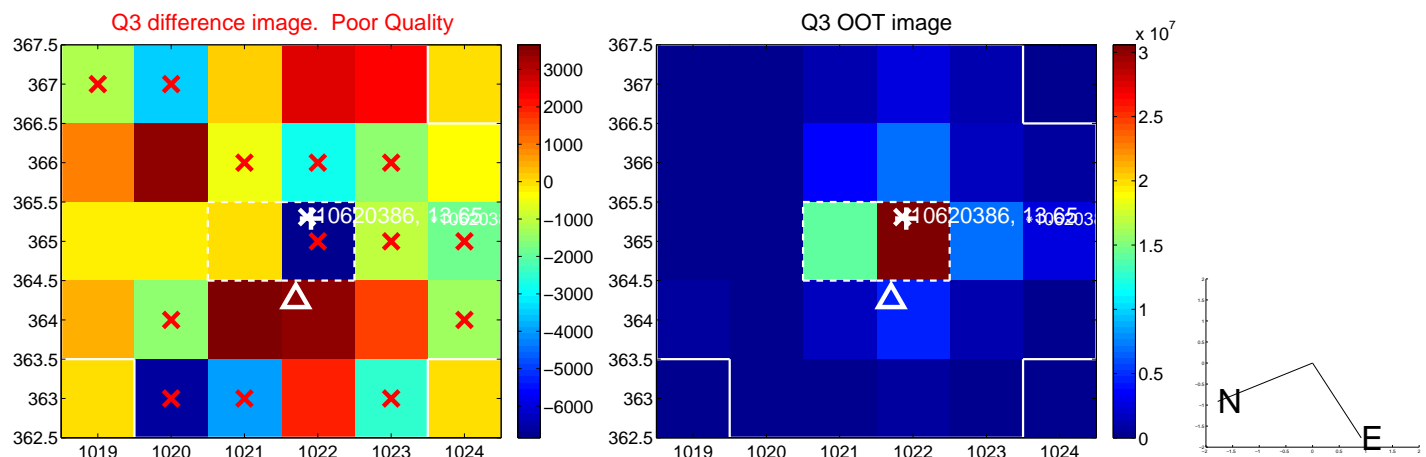
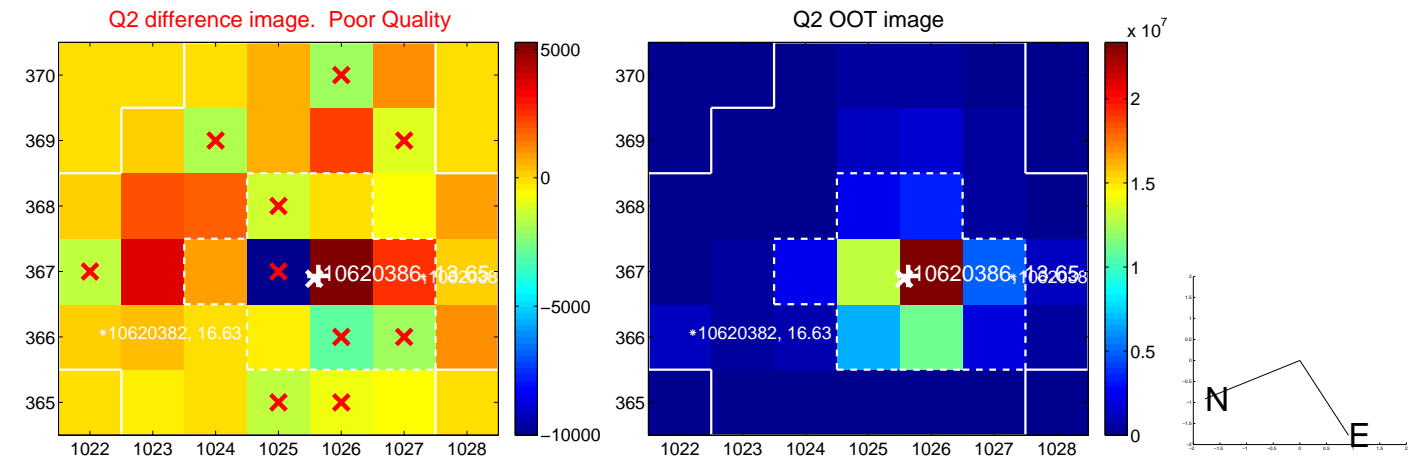
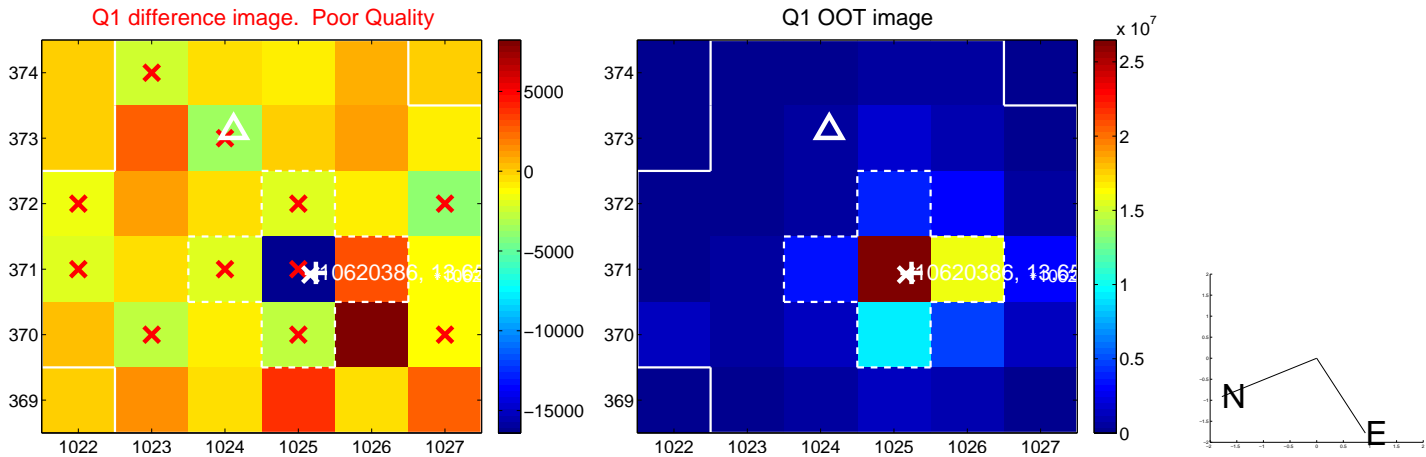
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.565 ± 2.471	1.04	-2.536 ± 2.495	0.381 ± 1.010
PRF-fit source offset from KIC position	2.510 ± 2.476	1.01	-2.505 ± 2.480	0.155 ± 1.015
photometric centroid source offset	1.06 ± 0.61	1.74	0.71 ± 0.60	-0.79 ± 0.61

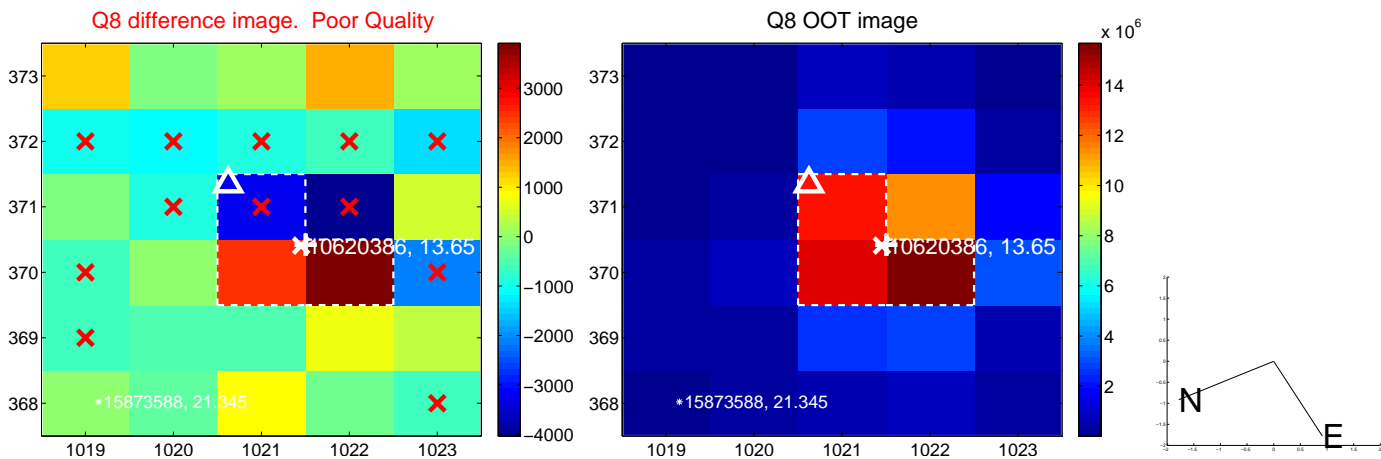
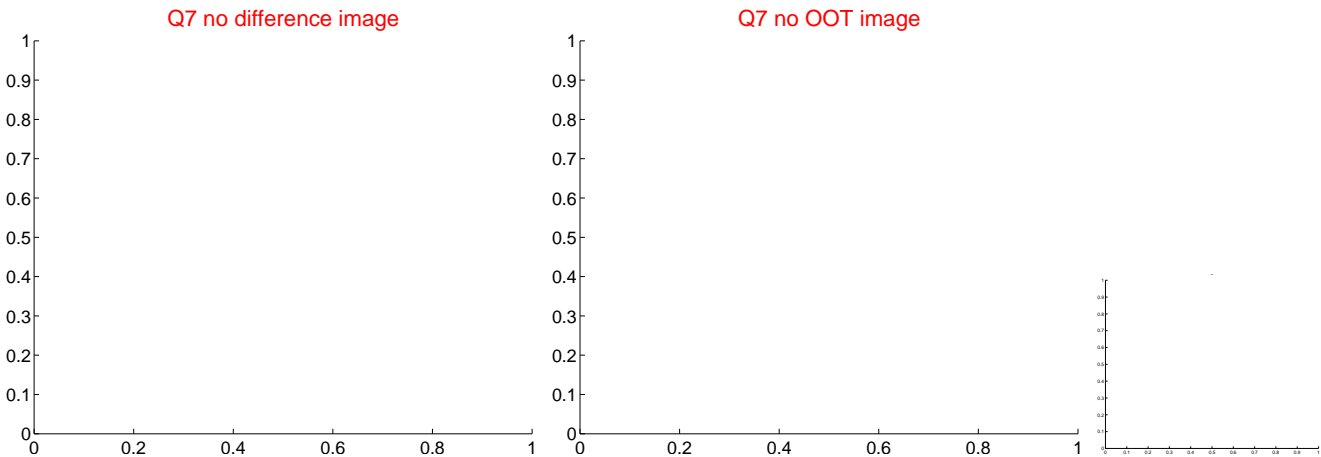
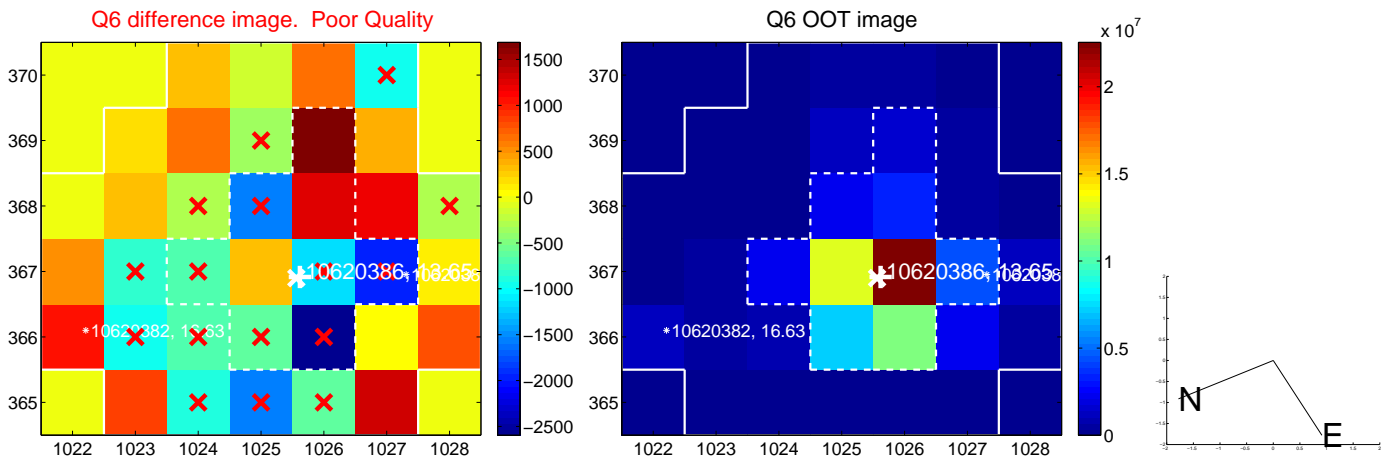
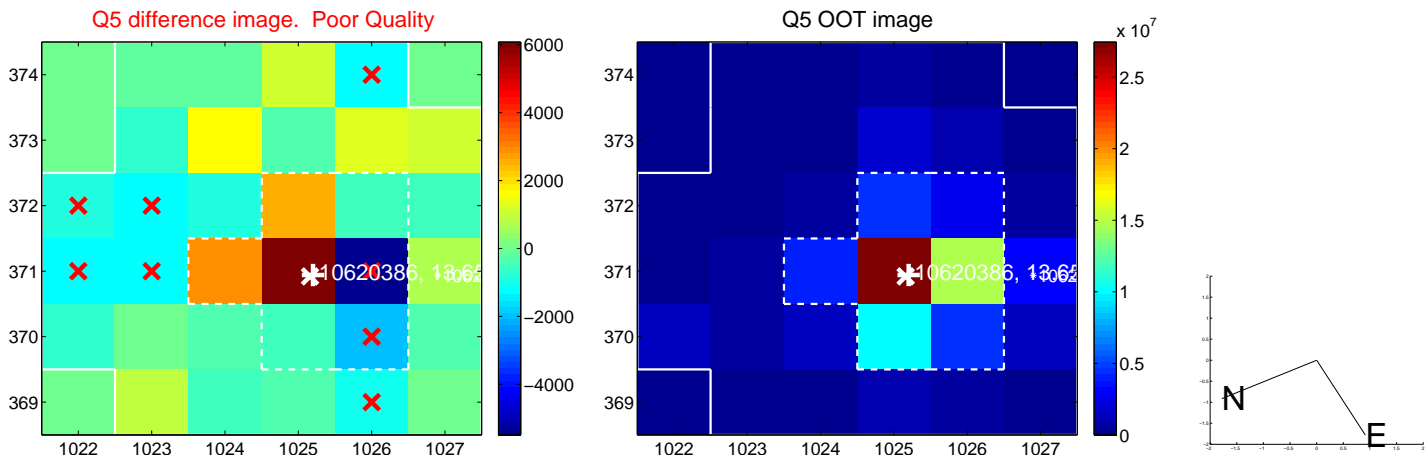


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

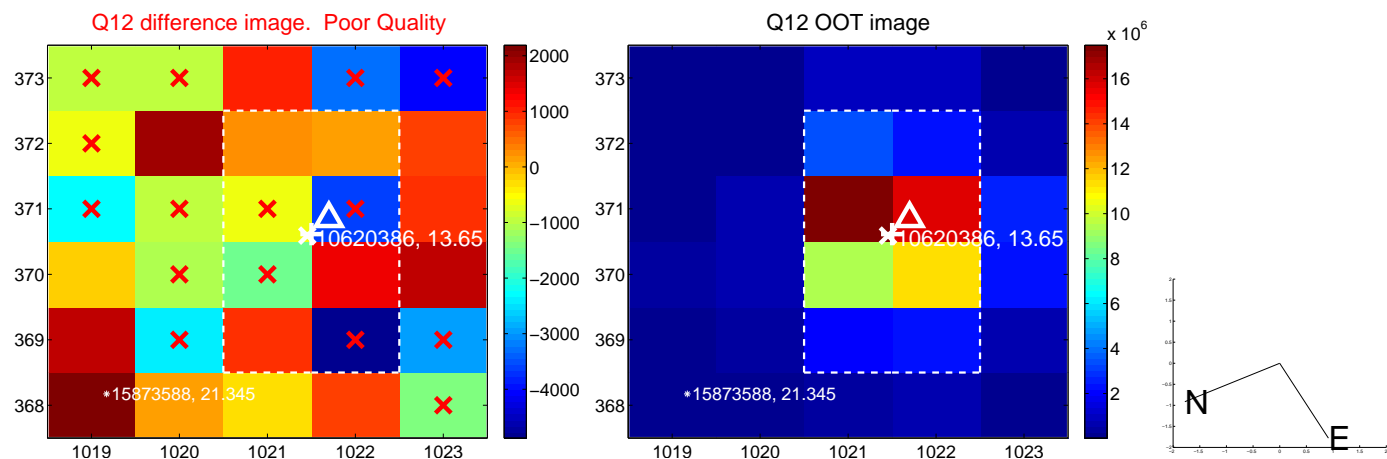
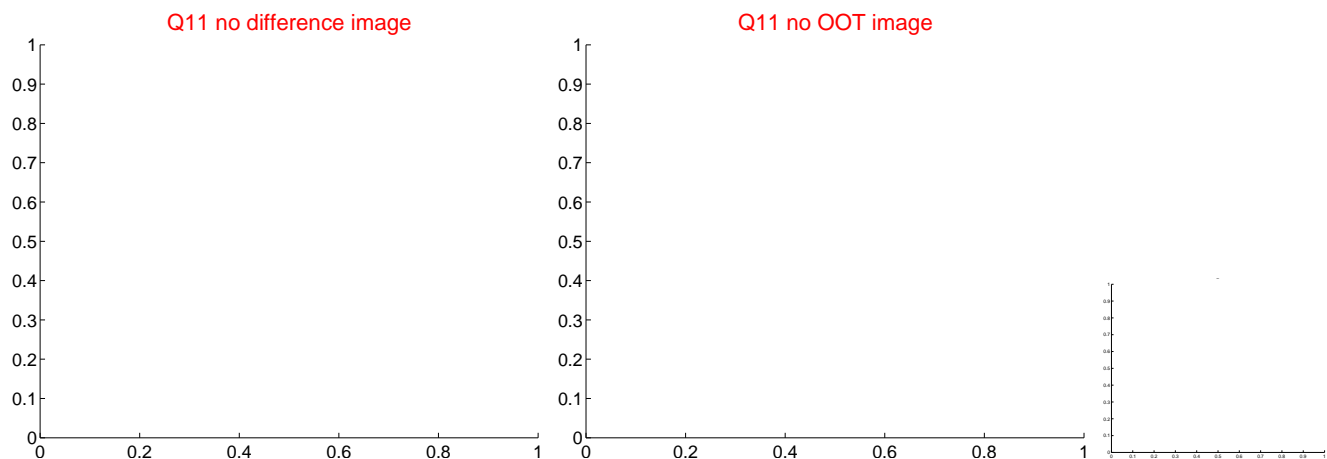
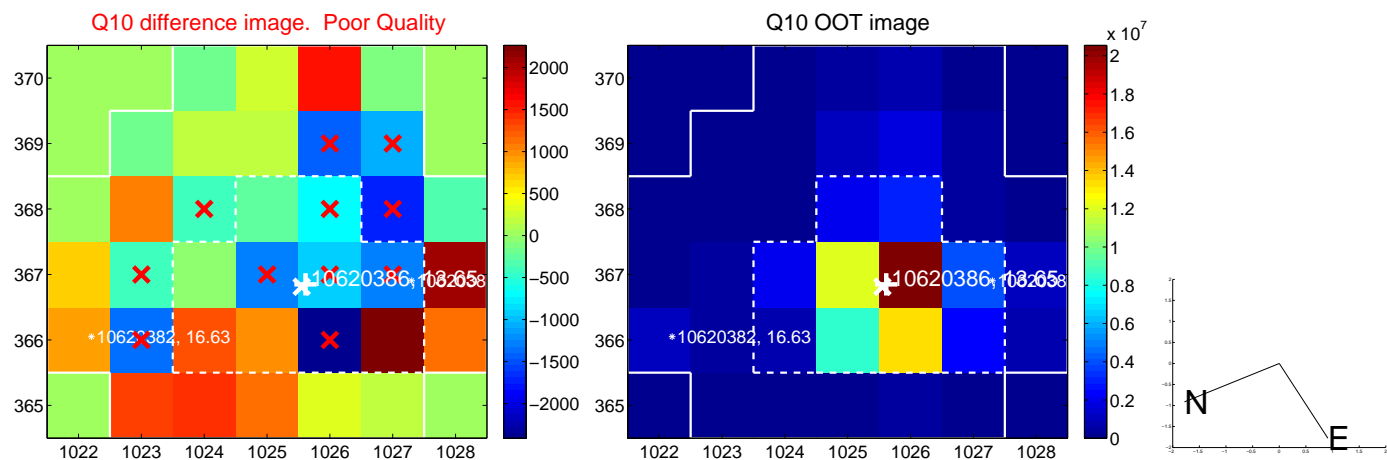
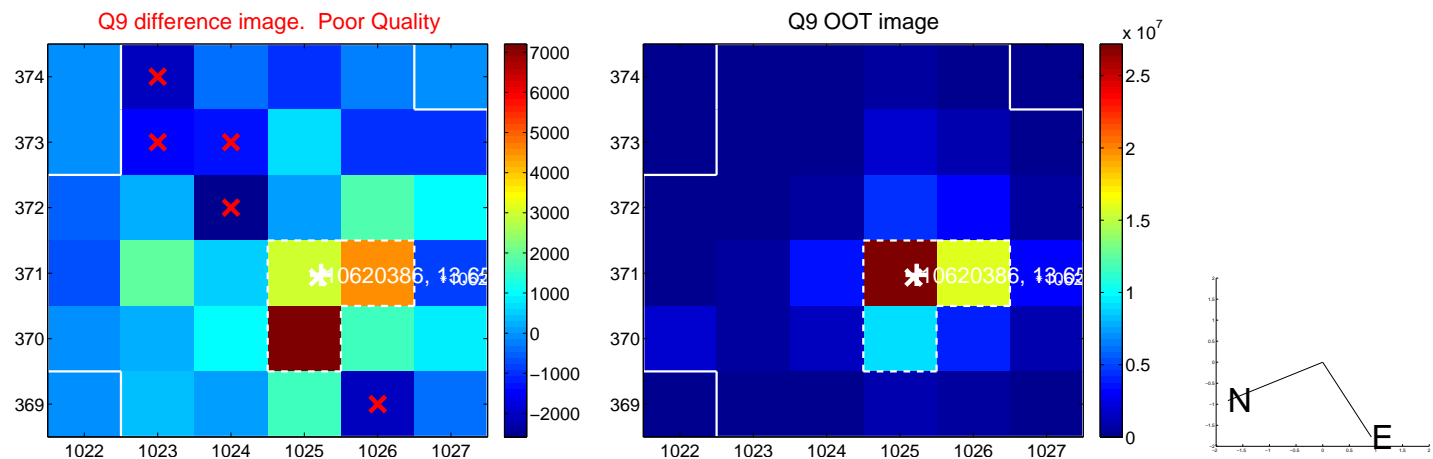
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



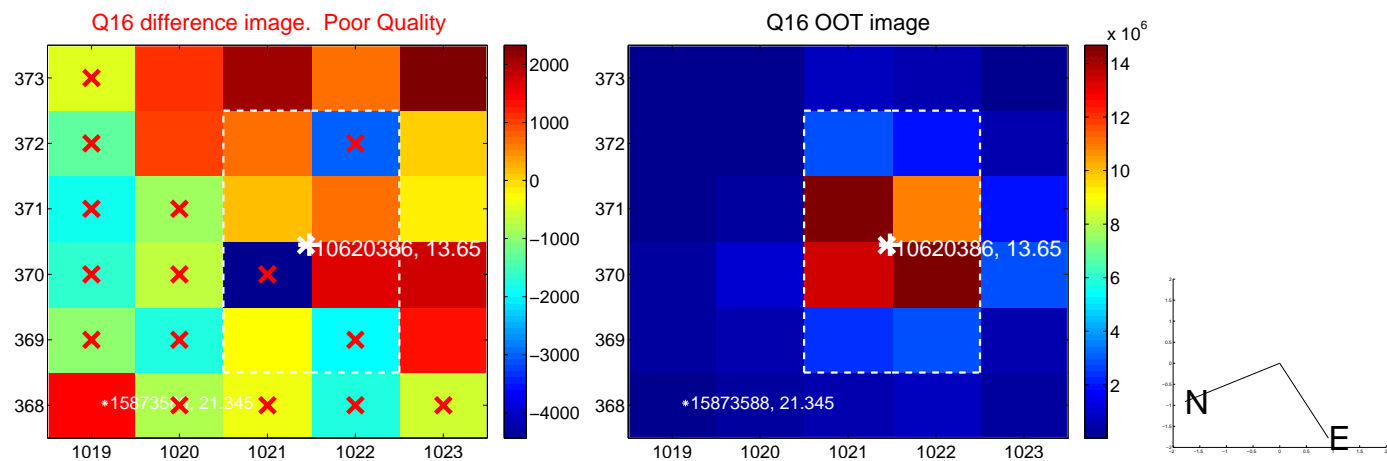
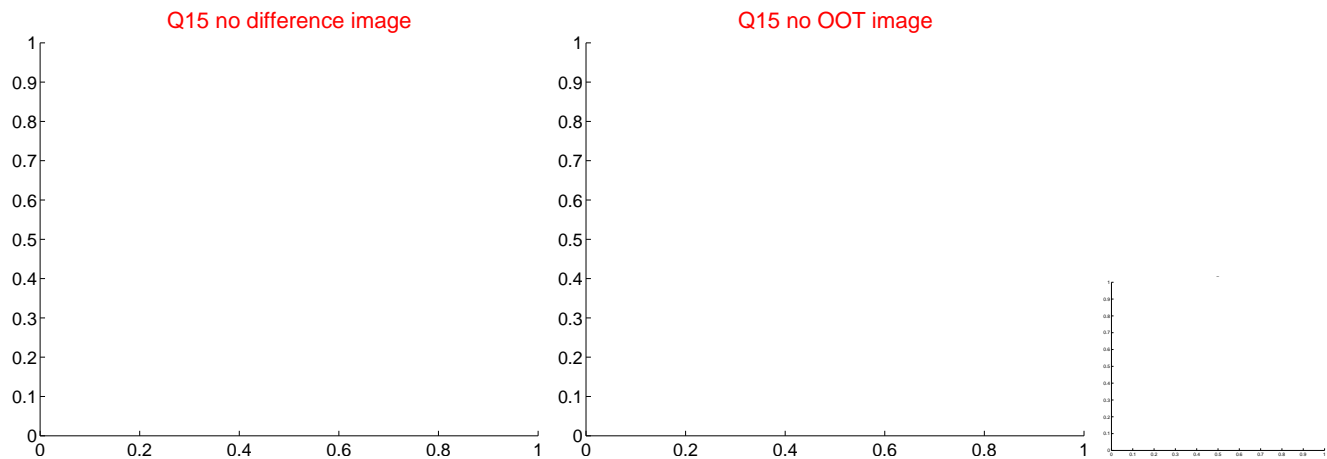
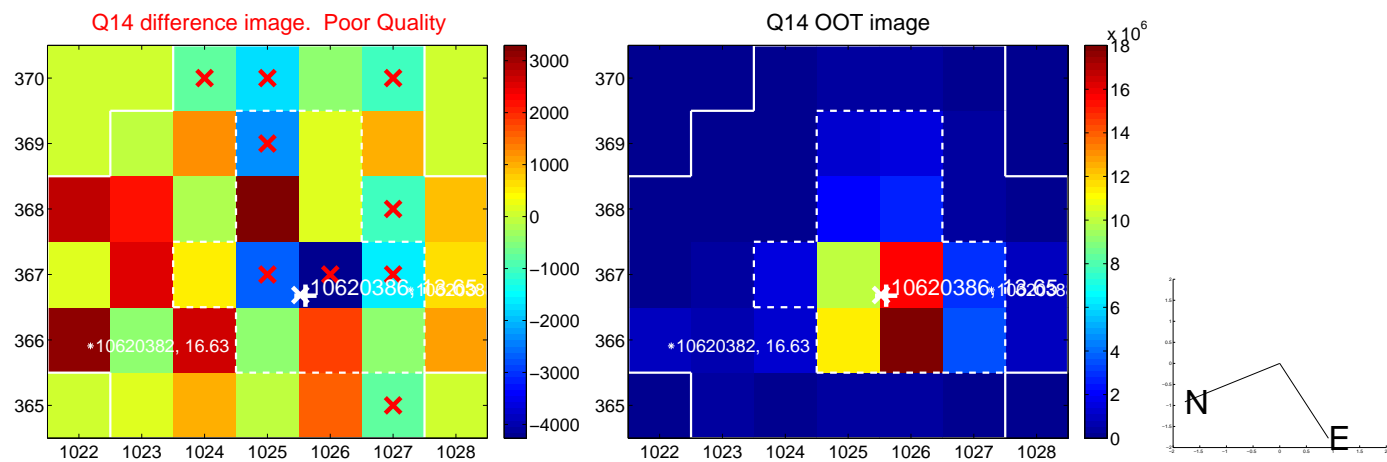
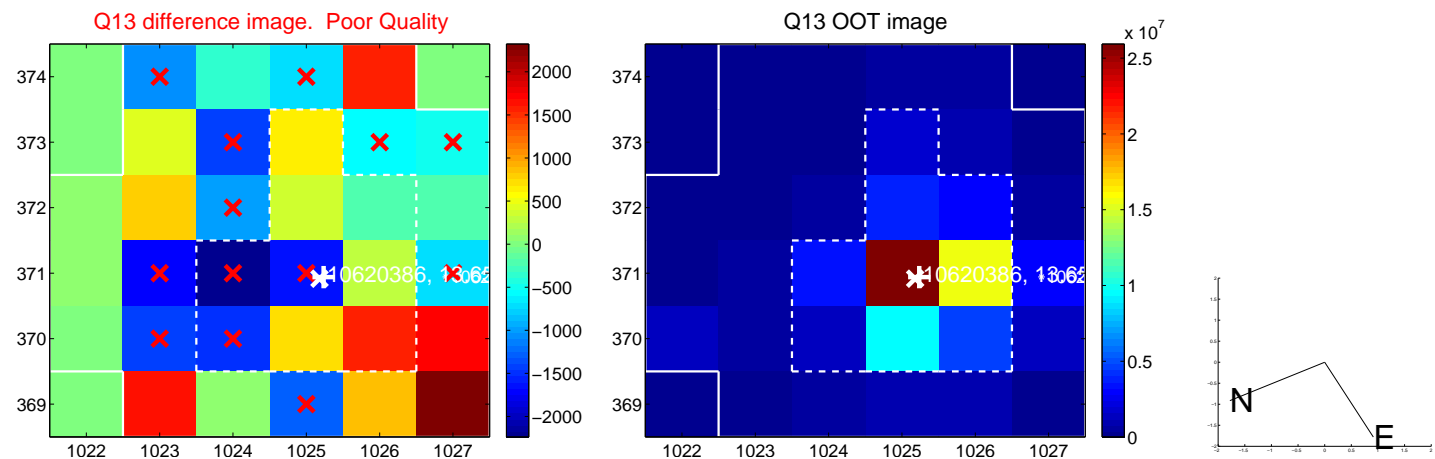
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



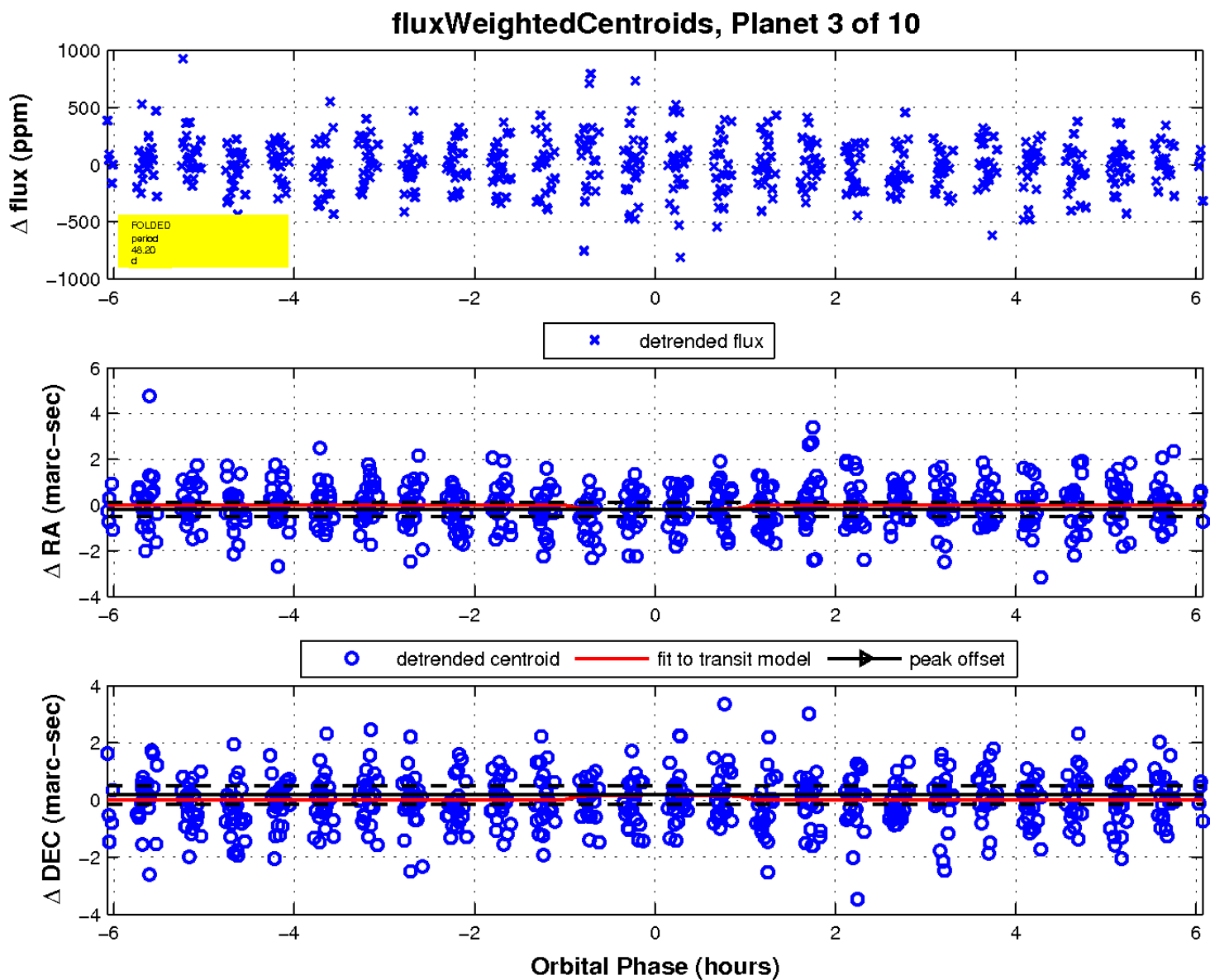
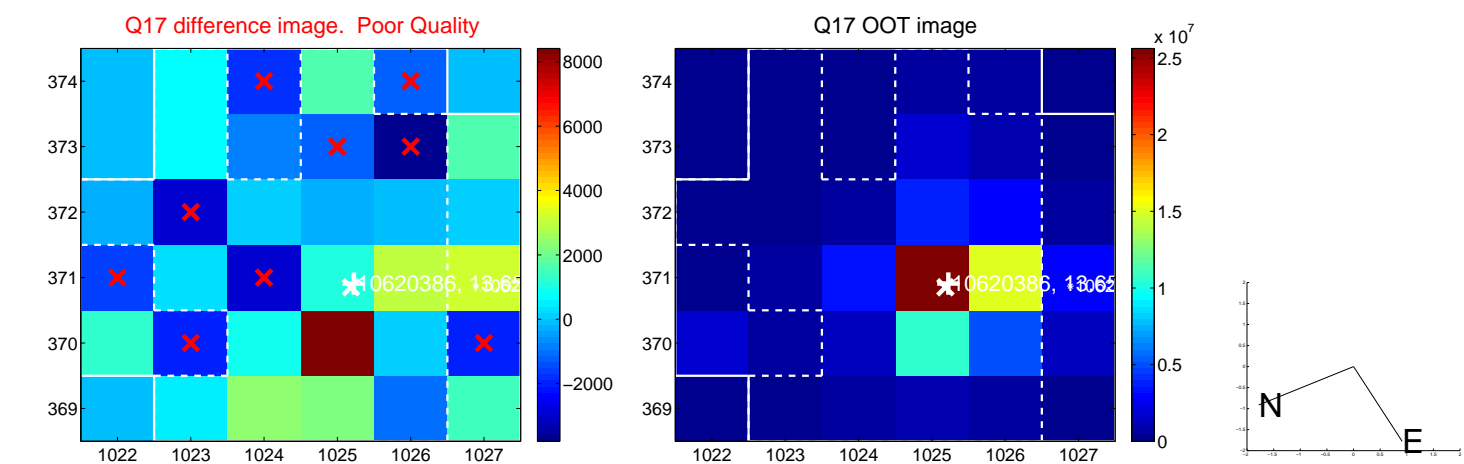
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

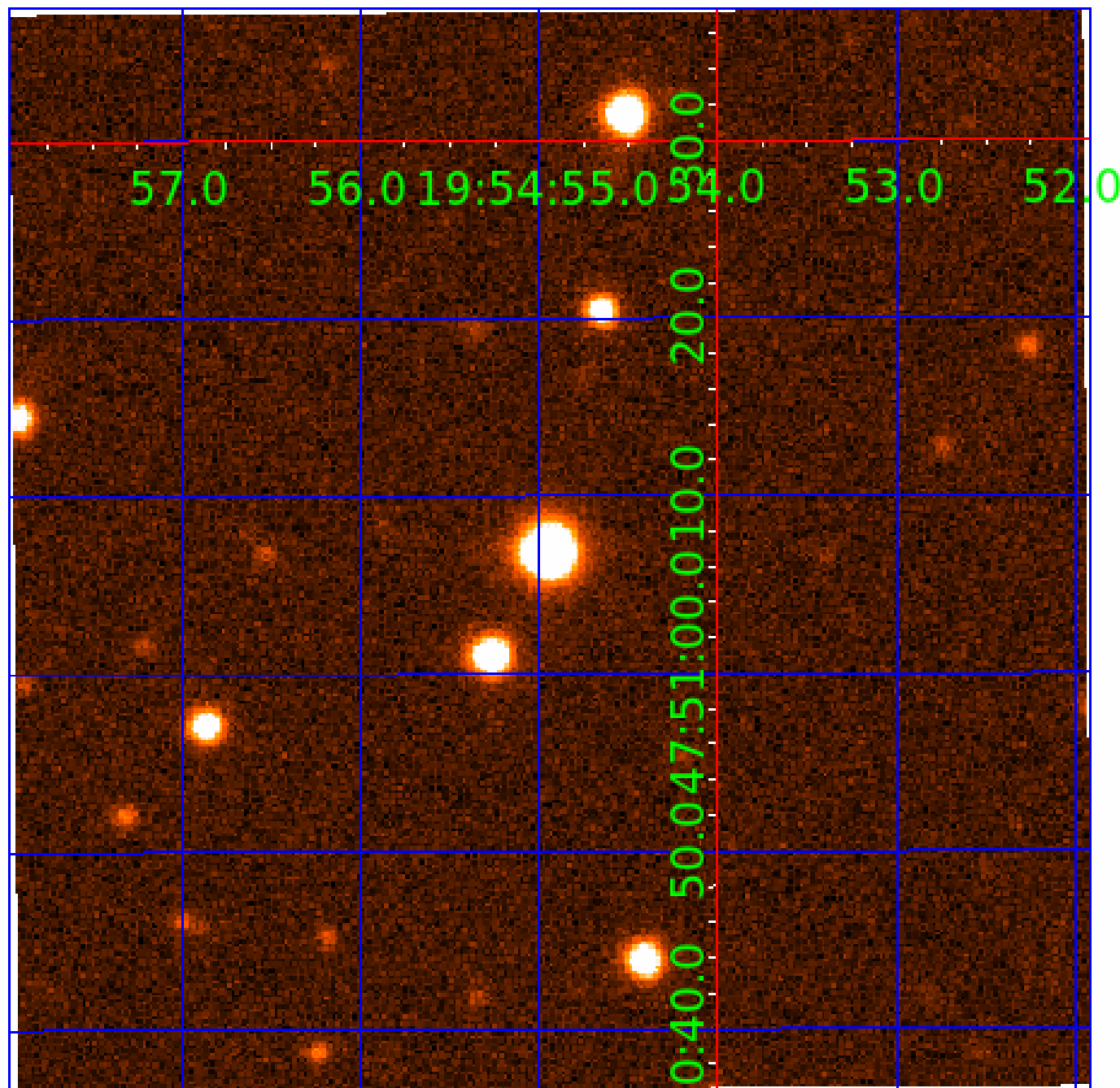


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
010620386-01	OBS	No	1.767922	132.121428	5.8	12.225	7.9	2.4	1.48	6760	0.38	4364.78
010620386-02	OBS	No	44.080619	166.027943	343.6	2.145	12.5	11.5	1.48	6760	2.95	59.92
010620386-03	OBS	No	48.202635	163.525750	465.8	2.026	11.2	9.4	1.48	6760	3.40	53.19
010620386-04	OBS	No	22.111977	133.011494	313.4	2.066	11.3	10.7	1.48	6760	2.94	150.34
010620386-05	OBS	No	157.912847	247.435004	263.1	5.144	9.8	9.7	1.48	6760	2.71	10.93
010620386-06	OBS	No	282.834750	152.515978	274.3	3.433	8.8	9.1	1.48	6760	2.72	5.03
010620386-07	OBS	No	18.357959	145.864348	253.8	2.290	10.9	10.9	1.48	6760	2.41	192.67
010620386-08	OBS	No	16.002501	147.312204	275.0	2.385	9.2	8.6	1.48	6760	2.77	231.38
010620386-09	OBS	No	35.872668	147.147565	262.3	3.732	8.5	8.7	1.48	6760	2.65	78.87
010620386-10	OBS	No	23.456372	140.582661	266.4	2.684	8.4	7.5	1.48	6760	2.82	138.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010620386-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010620386-09	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
010620386-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

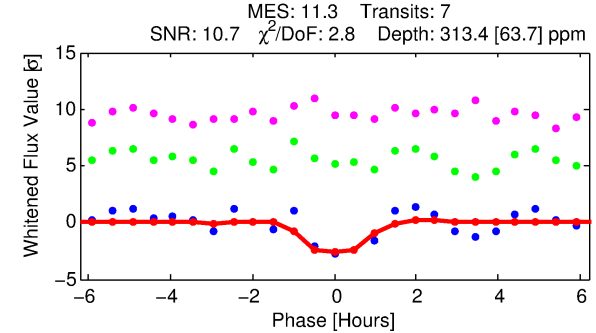
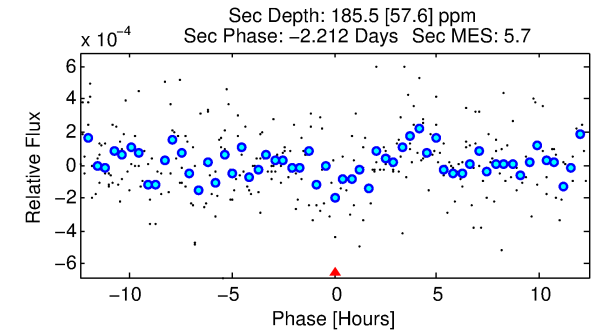
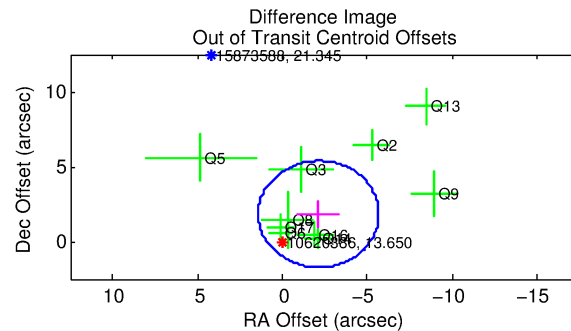
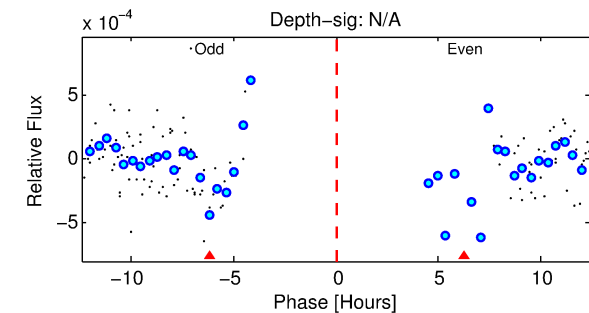
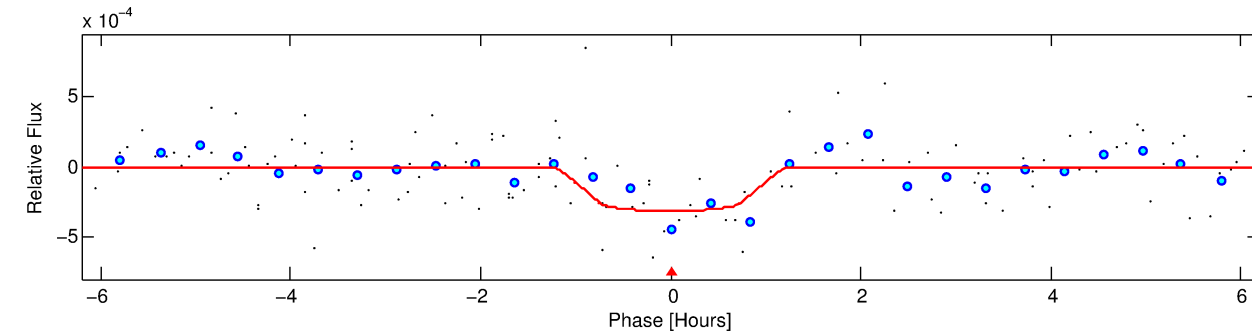
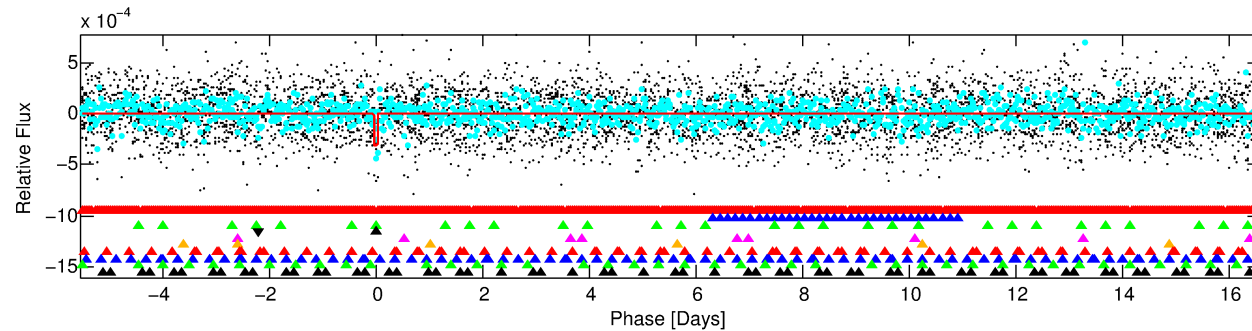
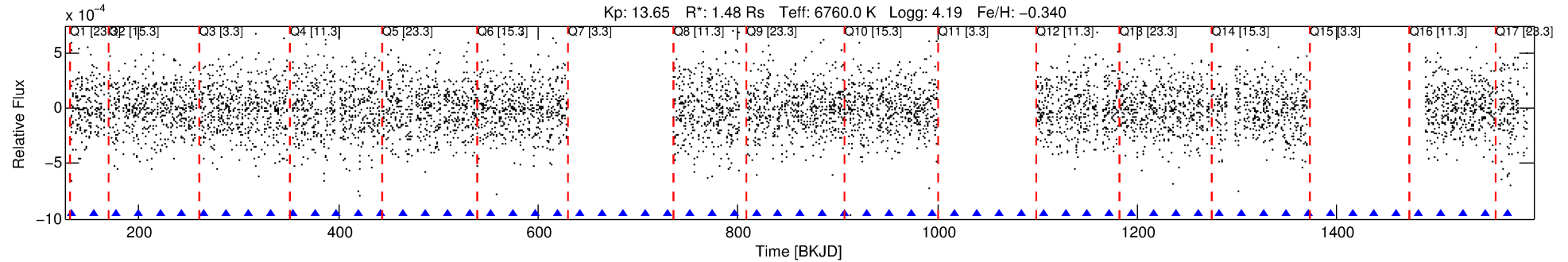
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010620386-04

No Significant Match Found

DV One-Page Summary

KIC: 10620386 Candidate: 4 of 10 Period: 22.112 d



DV Fit Results:

Period = 22.11198 [0.00033] d
Epoch = 133.0115 [0.0063] BKJD
Rp/R* = 0.0182 [0.0258]
a/R* = 47.54 [393.47]
b = 0.84 [3.02]
Seff = 150.34 [53.30]
Teff = 893 [79] K
Rp = 2.94 [4.25] Re
a = 0.1653 [0.0377] AU
Ag = 322.10 [925.16] [0.35σ]
Teffp = 5848 [4177] K [1.19σ]

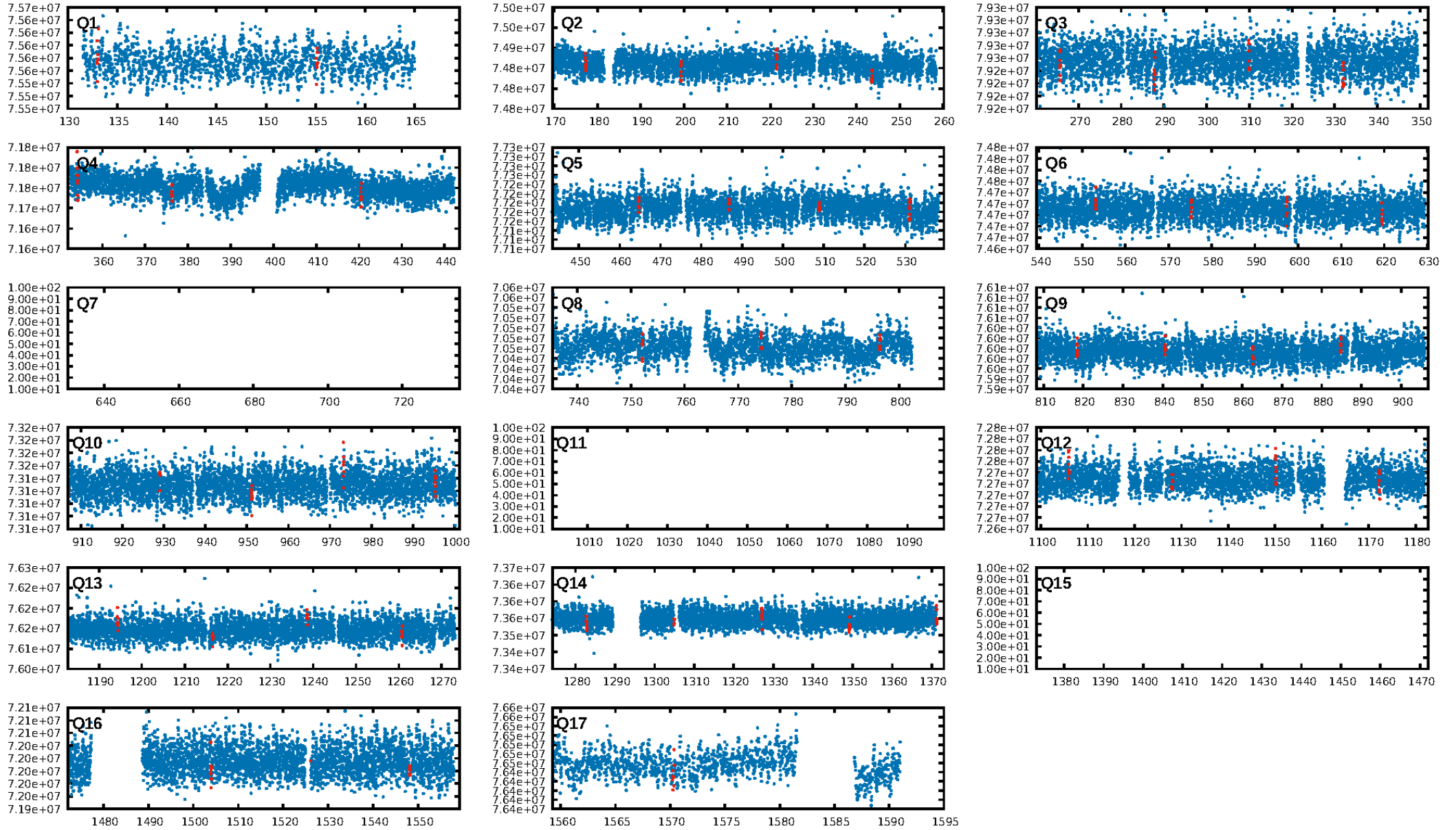
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [29.21σ]
LongPeriod-sig: 100.0% [9.53σ]
ModelChiSquare2-sig: 54.2%
ModelChiSquareGof-sig: 20.1%
Bootstrap-pfa: 4.99e-11
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.1259
Centroid-sig: 66.2%
Centroid-so: 0.798 arcsec [1.25σ]
OotOffset-rm: 2.810 arcsec [2.37σ]
KicOffset-rm: 2.633 arcsec [2.27σ]
OotOffset-st: 3/1/2/4 [10]
KicOffset-st: 3/1/2/4 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 0.71 [10/14]

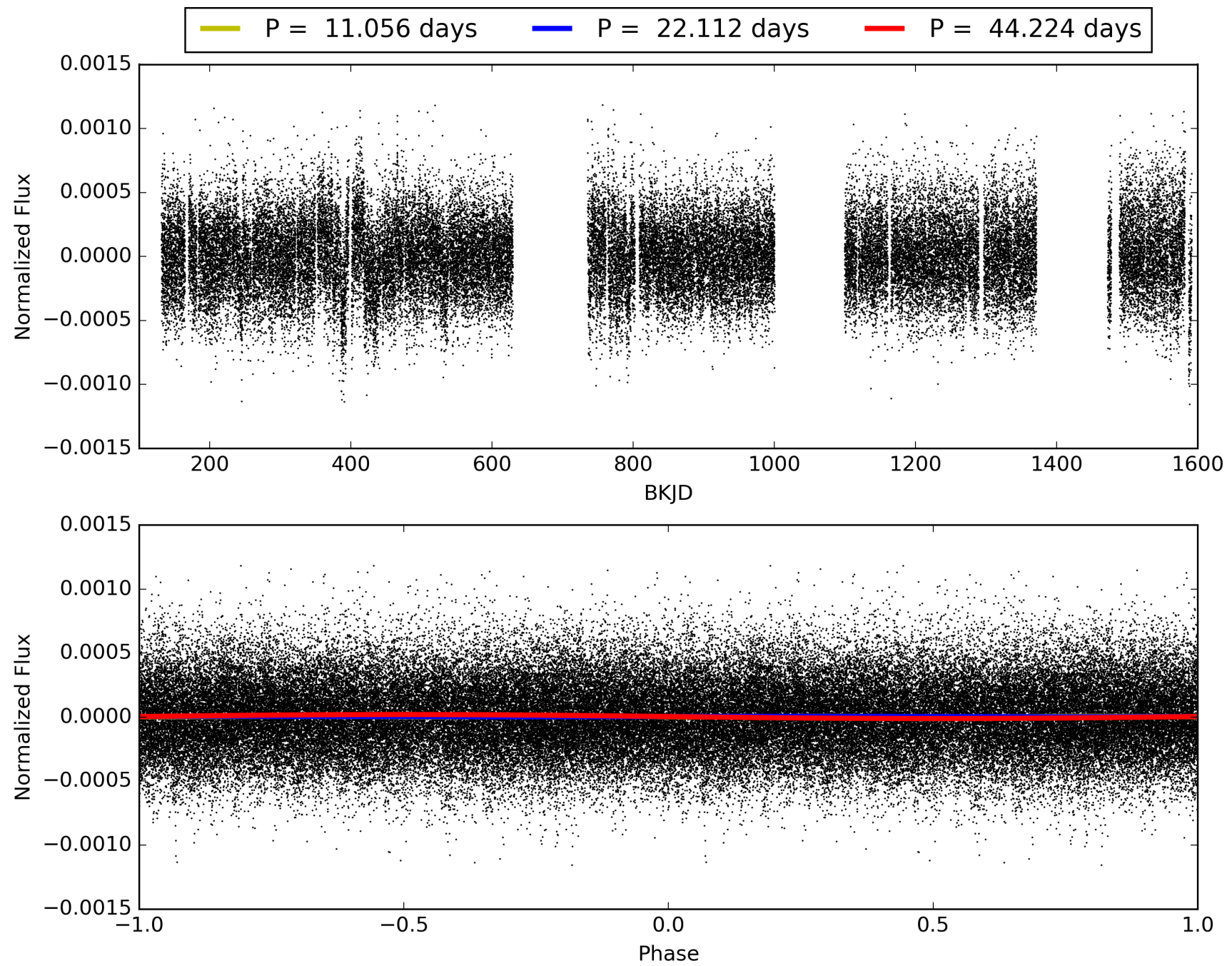
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:19:55 Z

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

TCE 010620386-04, PDC Light Curves

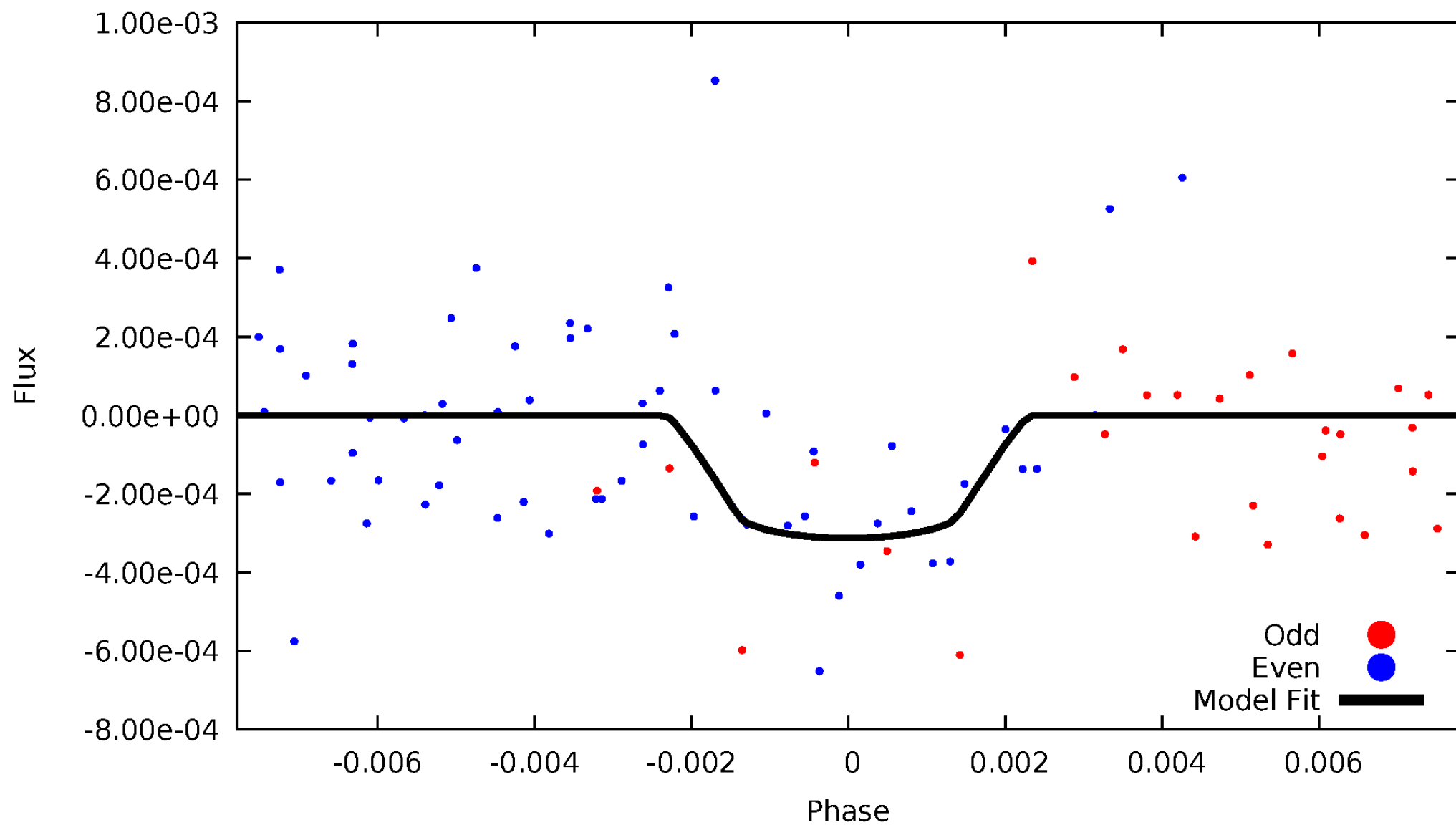


TCE 010620386-04



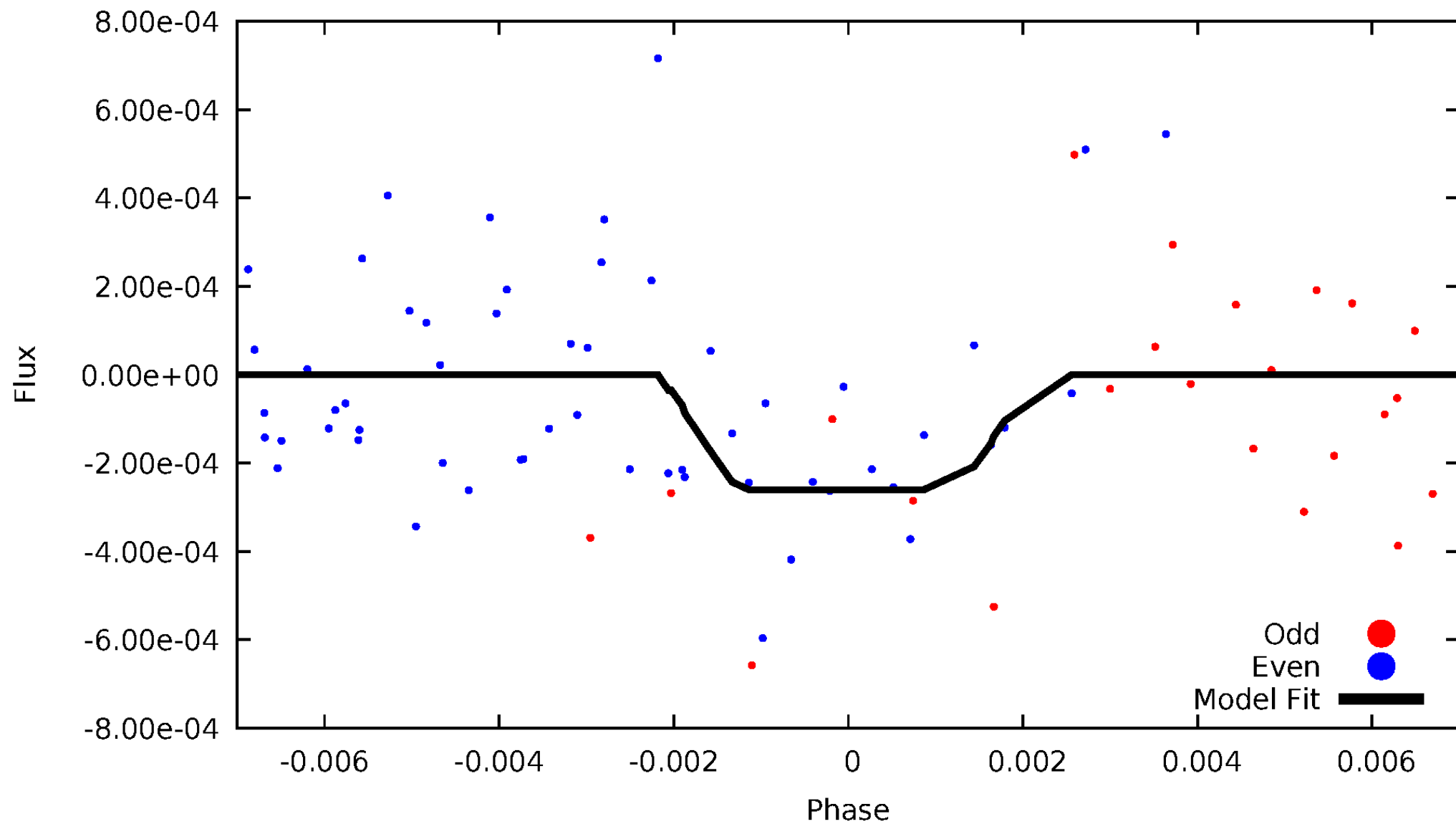
DV Odd/Even

TCE 010620386-04



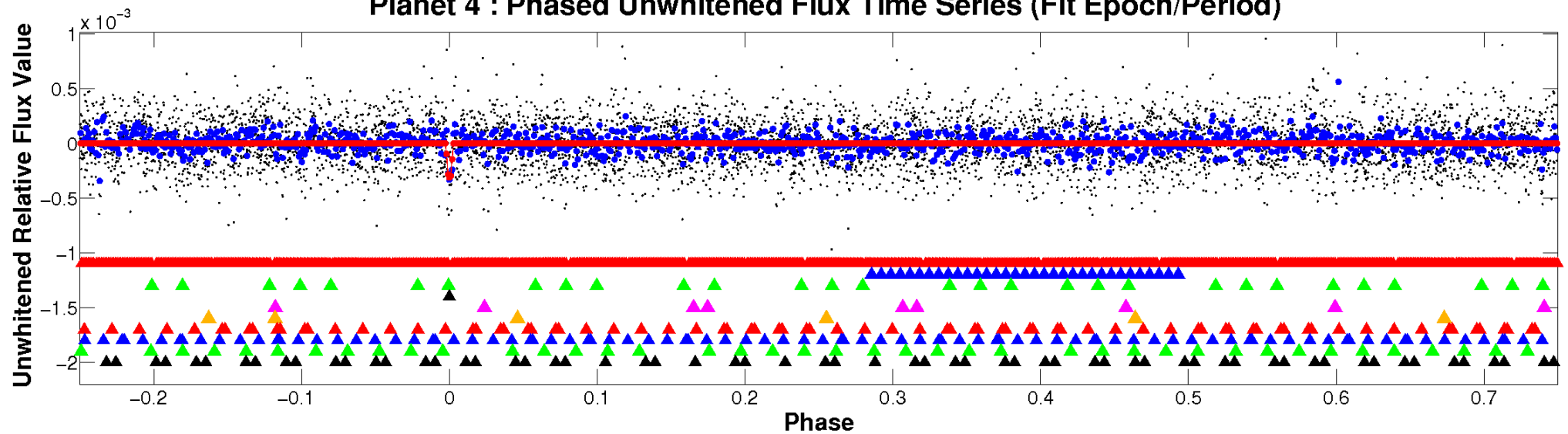
ALT Odd/Even

TCE 010620386-04

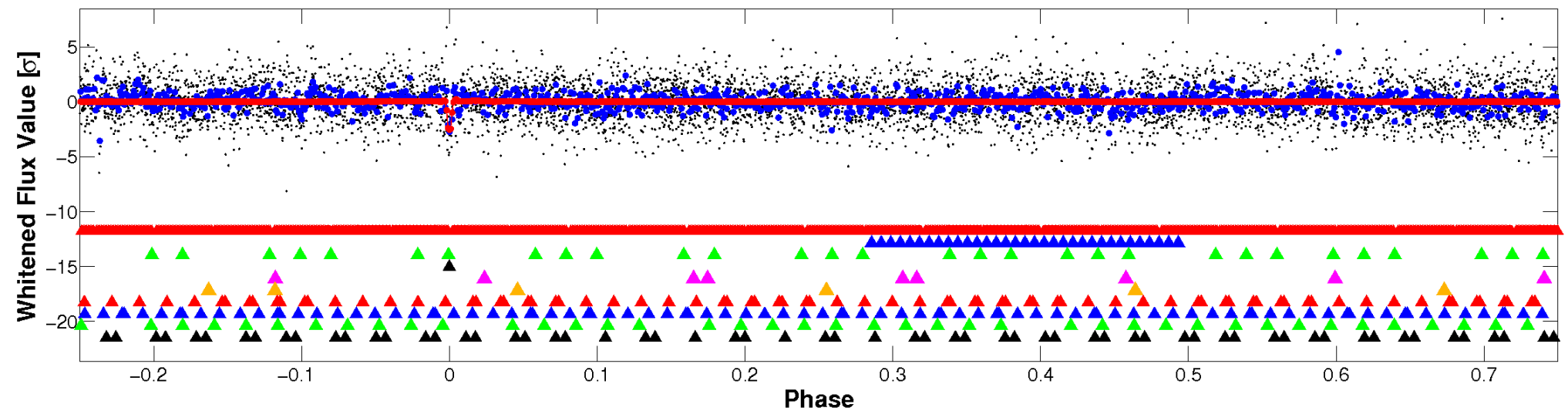


Non-Whitened Vs. Whitened Light Curve

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

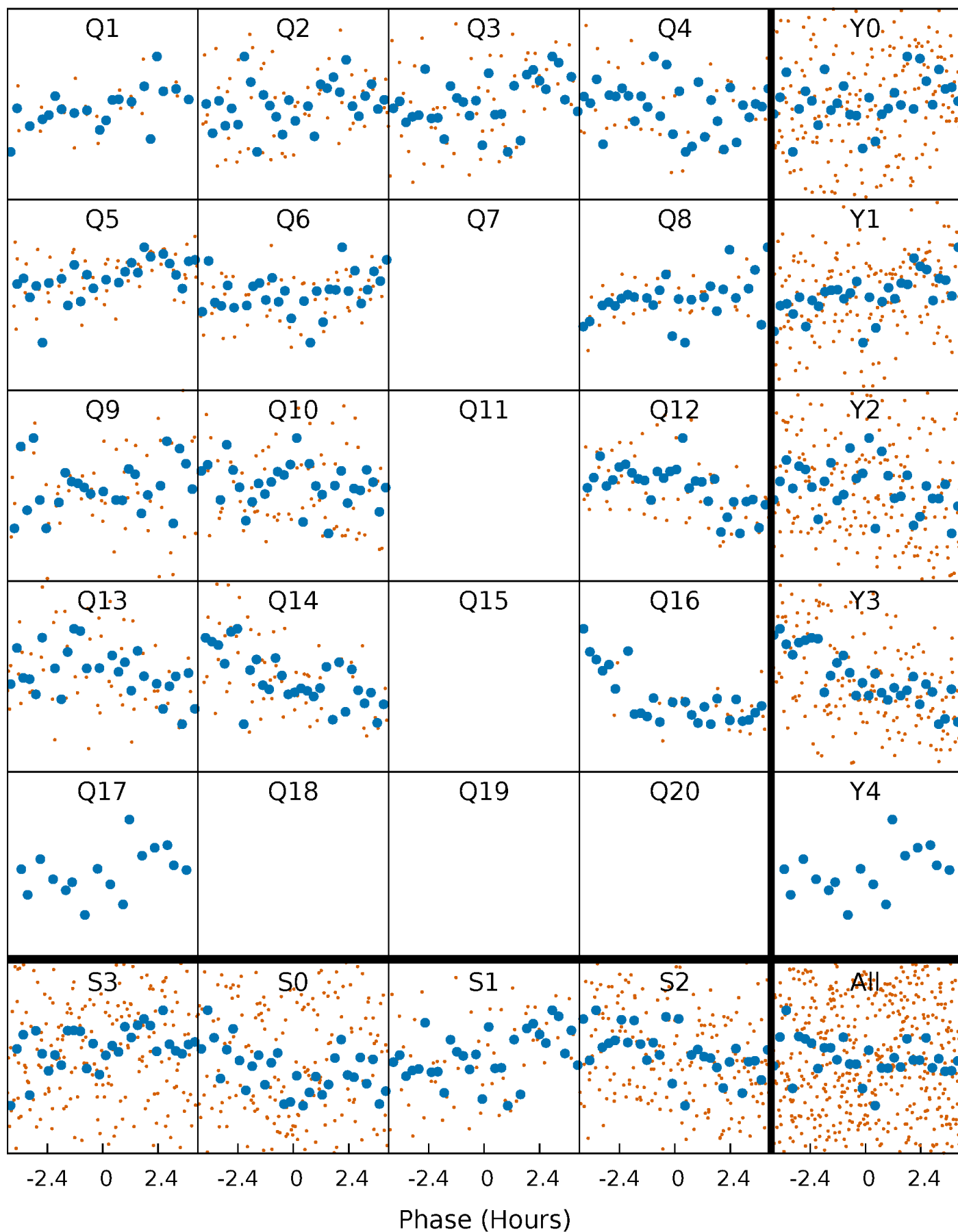


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



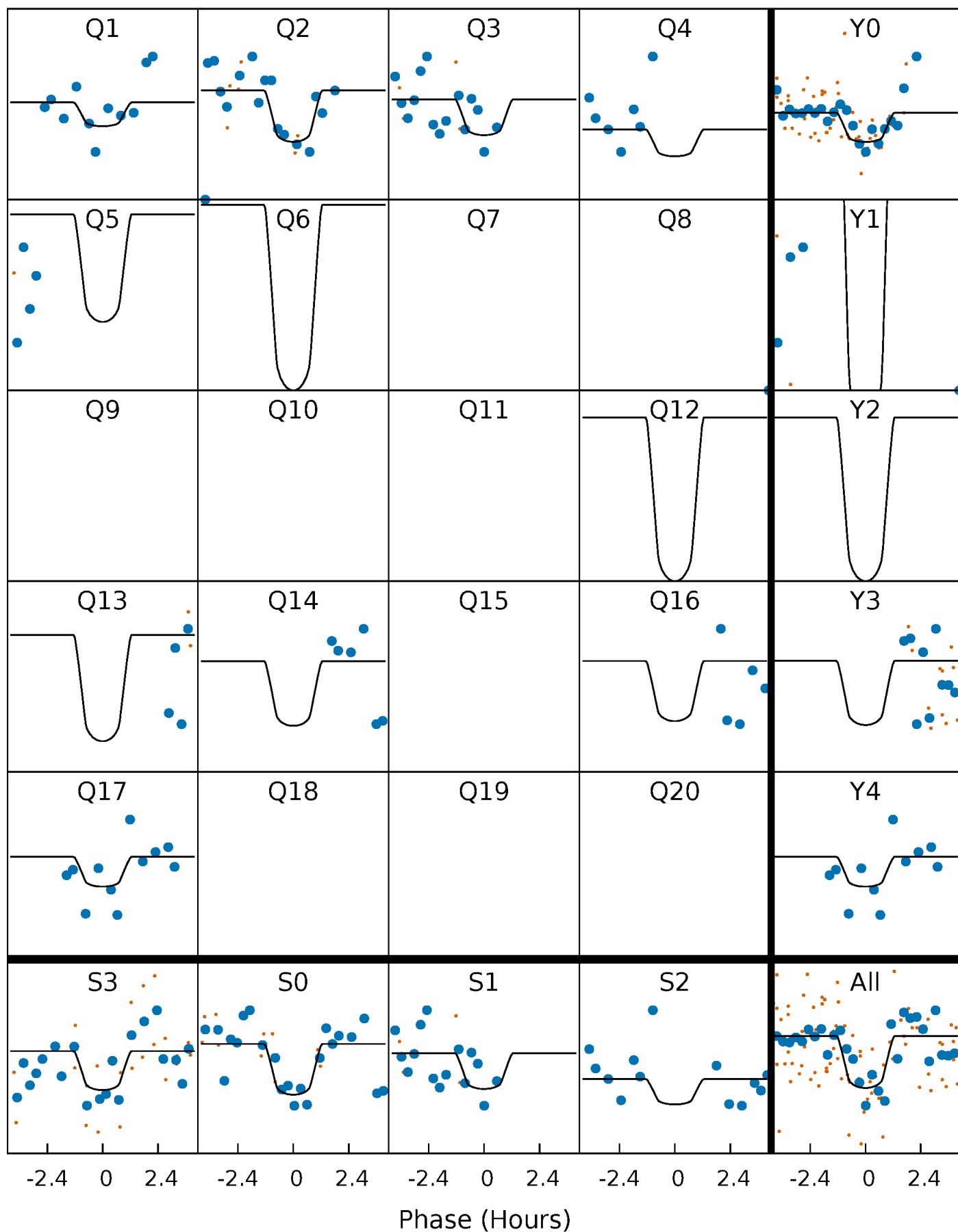
PDC Quarter-Phased Transit Curves

TCE 010620386-04 P= 22.111977 Days $T_0=133.011494$ (BKJD)



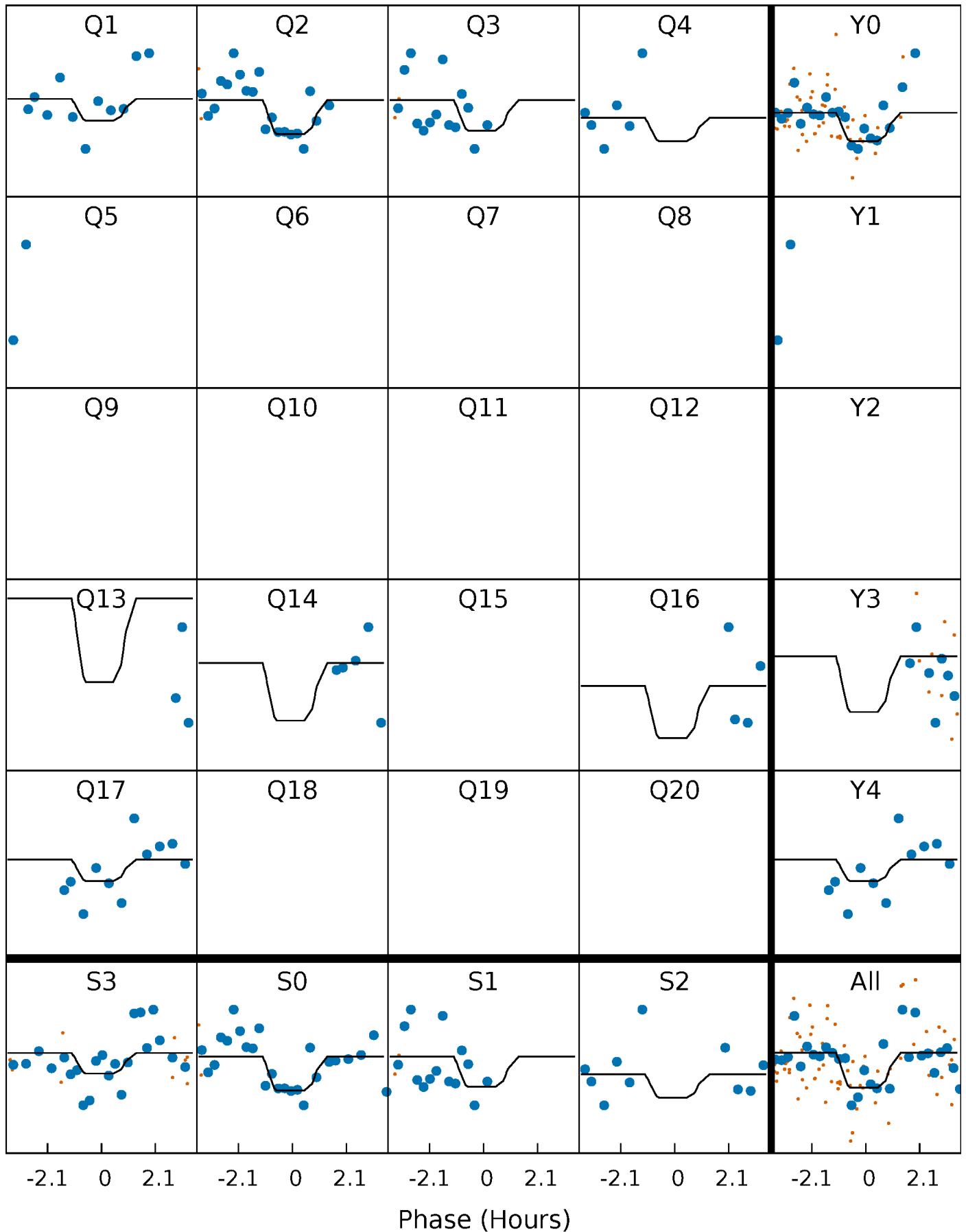
DV Quarter-Phased Transit Curves

TCE 010620386-04 P= 22.111977 Days $T_0=133.011494$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

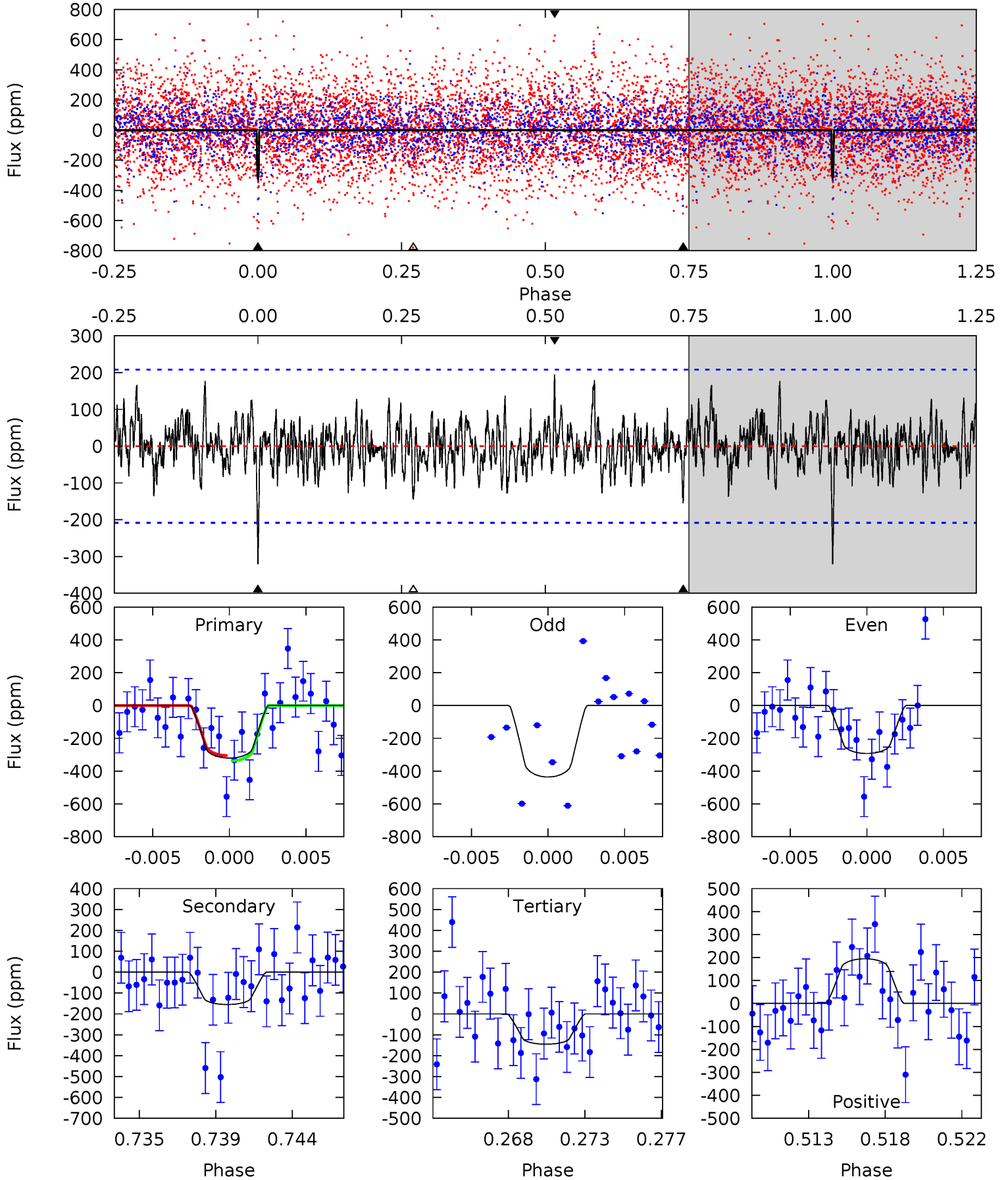
TCE 010620386-04 P= 22.111685 Days $T_0=133.025063$ (BKJD)



DV Model-Shift Uniqueness Test

010620386-04, P = 22.111977 Days, E = 110.899517 Days

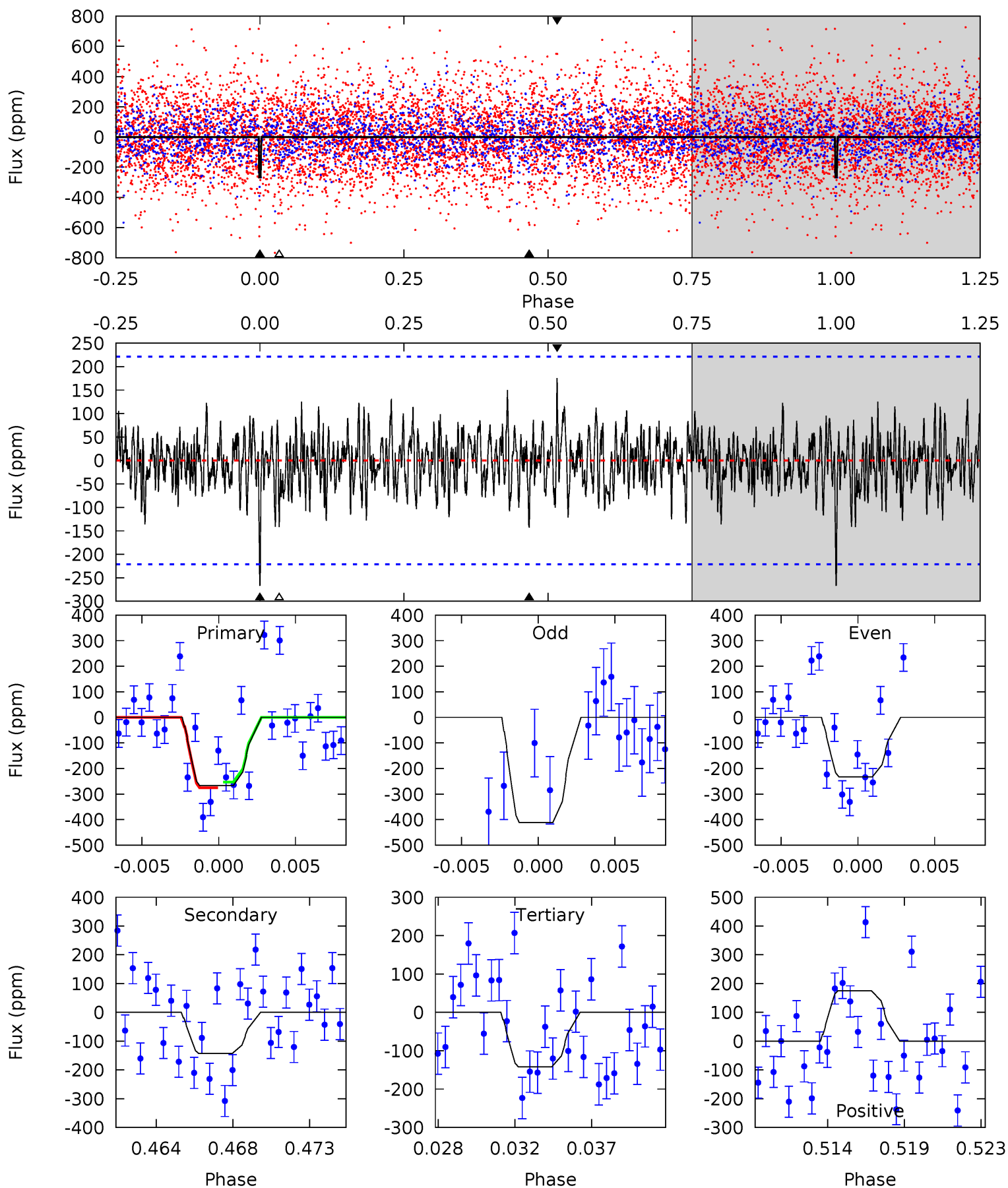
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.96	3.85	3.61	4.83	5.17	2.83	1.26	4.35	3.13	0.24	-0.98	1.31	0.98	0.38	0.40



Alt Model-Shift Uniqueness Test

010620386-04, P = 22.111685 Days, E = 110.913378 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.25	3.34	3.32	4.10	5.17	2.83	1.12	2.93	2.15	0.02	-0.76	1.62	0.98	0.40	0.26



Stellar Parameters For KIC 010620386

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6760^{+189}_{-236}	$4.187^{+0.158}_{-0.175}$	$-0.340^{+0.250}_{-0.300}$	$1.482^{+0.410}_{-0.336}$	$1.237^{+0.170}_{-0.208}$	$0.536^{+0.500}_{-0.263}$
	+3%/-3%	+4%/-4%	+74%/-88%	+28%/-23%	+14%/-17%	+93%/-49%
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 010620386-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-155 ± 40	$4.28^{+3.78}_{-2.79}$	1245^{+95}_{-84}	4742^{+3048}_{-999}	127^{+812}_{-94}
Alt.	-143 ± 43	$4.11^{+3.75}_{-2.63}$	1250^{+91}_{-85}	4679^{+3198}_{-995}	121^{+882}_{-90}

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

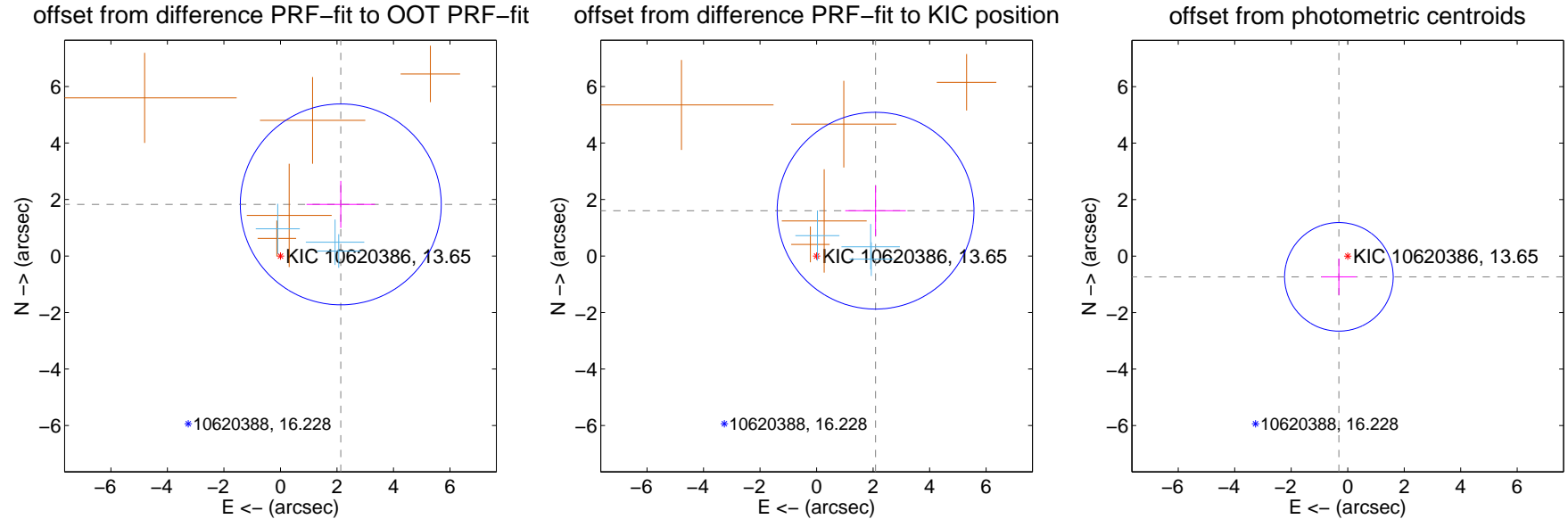
DV Centroid Data

Supplemental centroid analysis for 010620386-04. Kepler magnitude: 13.65. Transit SNR 10.66

There are 3 quarters with good PRF difference image offsets

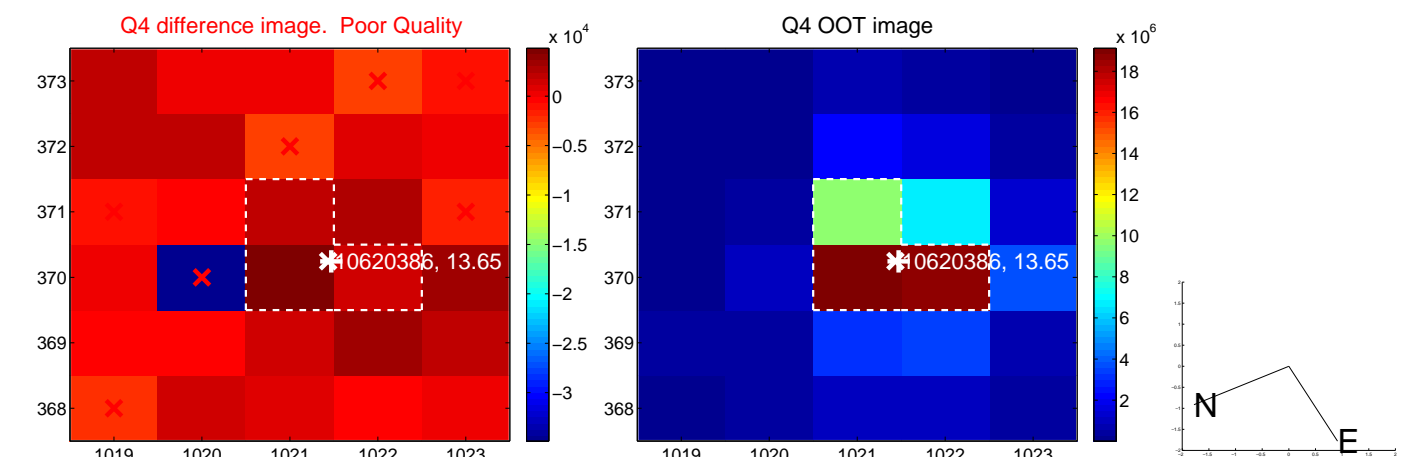
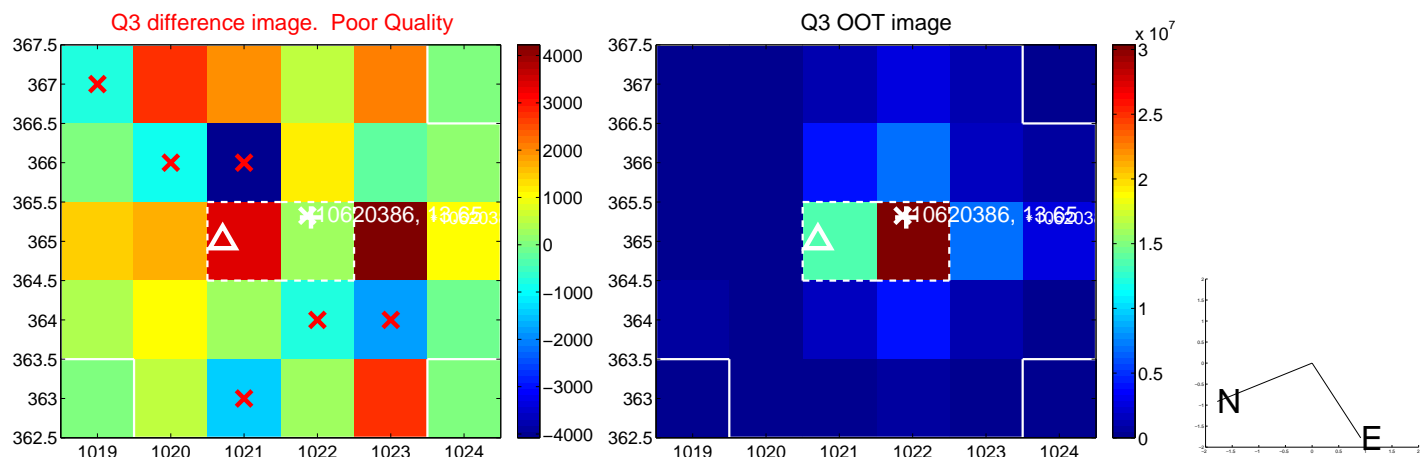
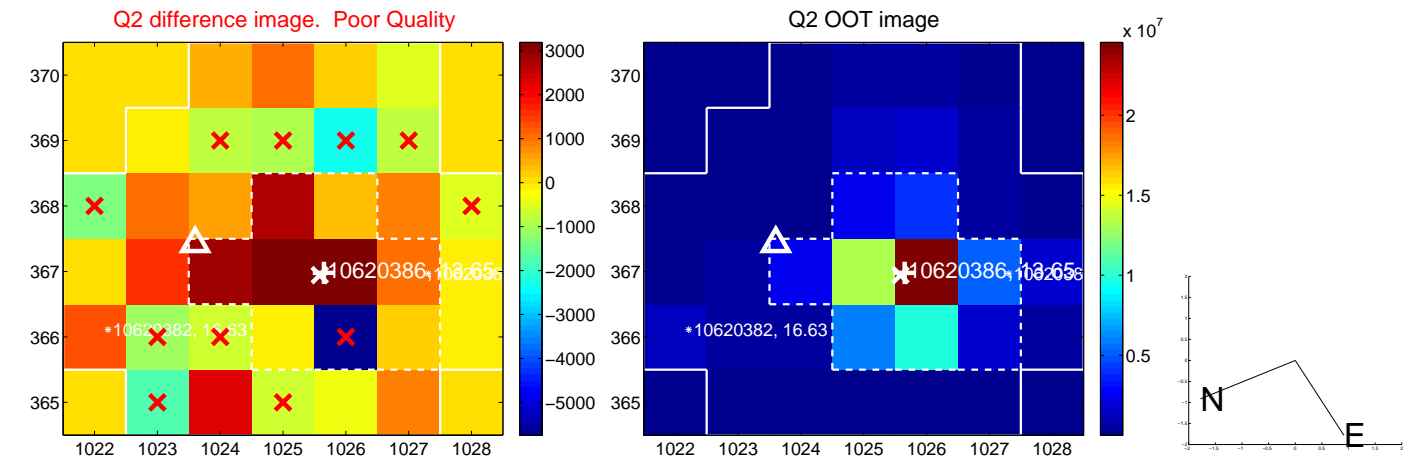
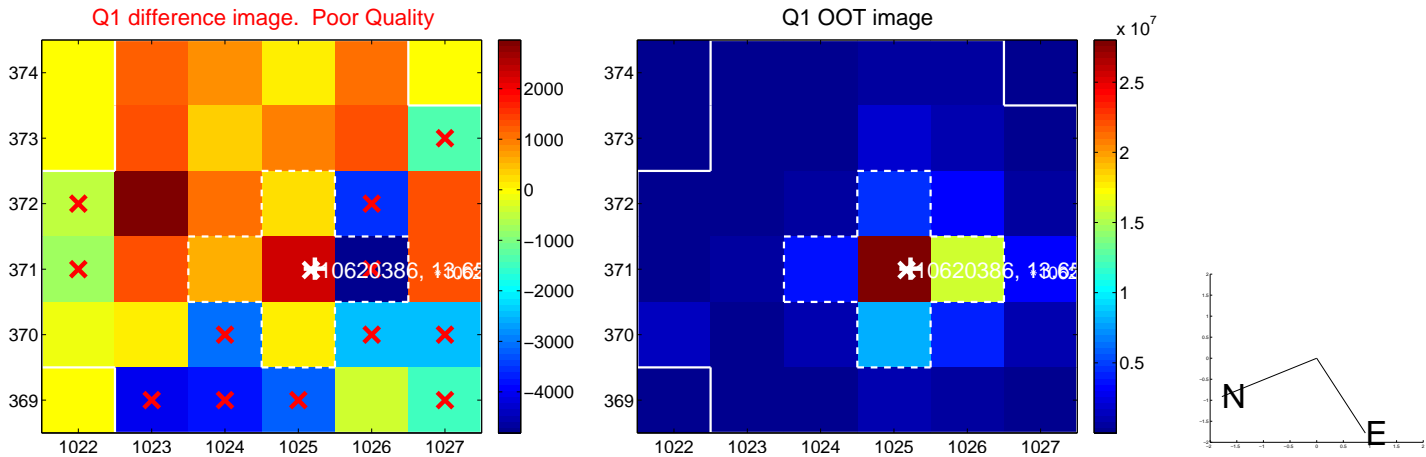
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.810 ± 1.185	2.37	-2.135 ± 1.211	1.828 ± 0.833
PRF-fit source offset from KIC position	2.633 ± 1.161	2.27	-2.087 ± 1.072	1.605 ± 0.891
photometric centroid source offset	0.80 ± 0.64	1.25	0.31 ± 0.62	-0.73 ± 0.65

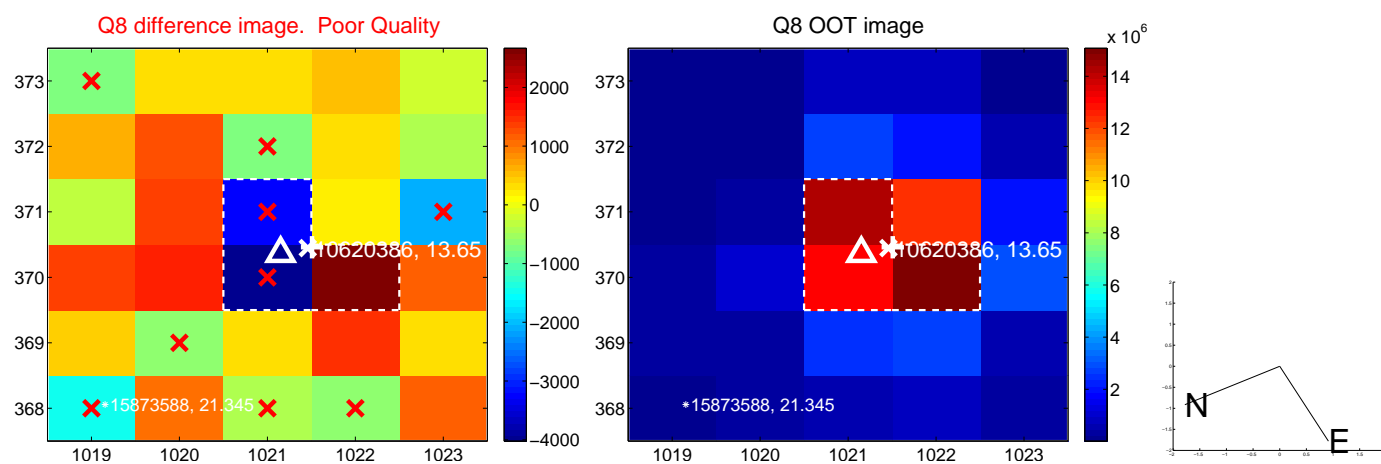
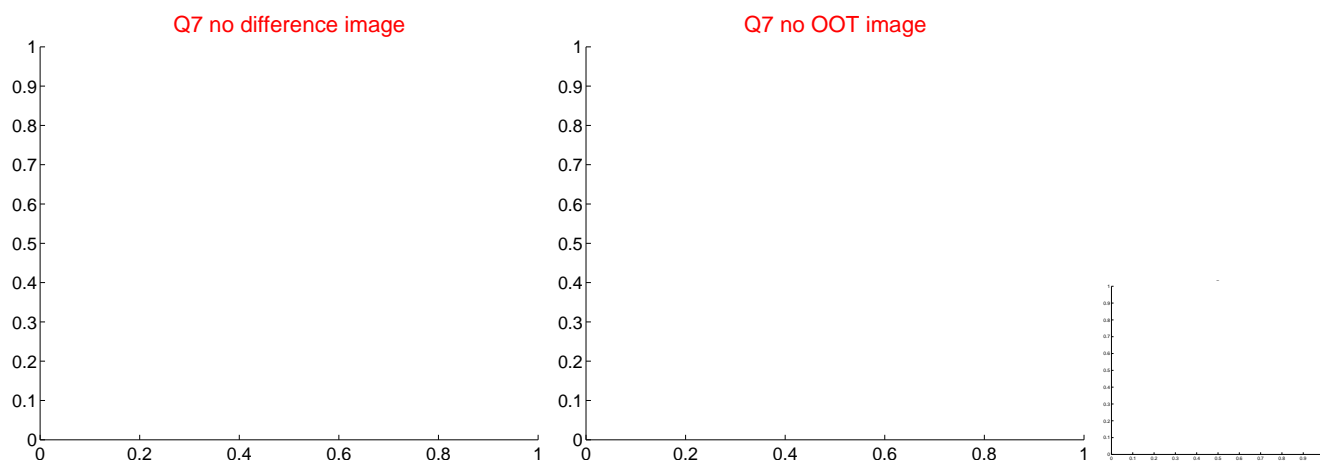
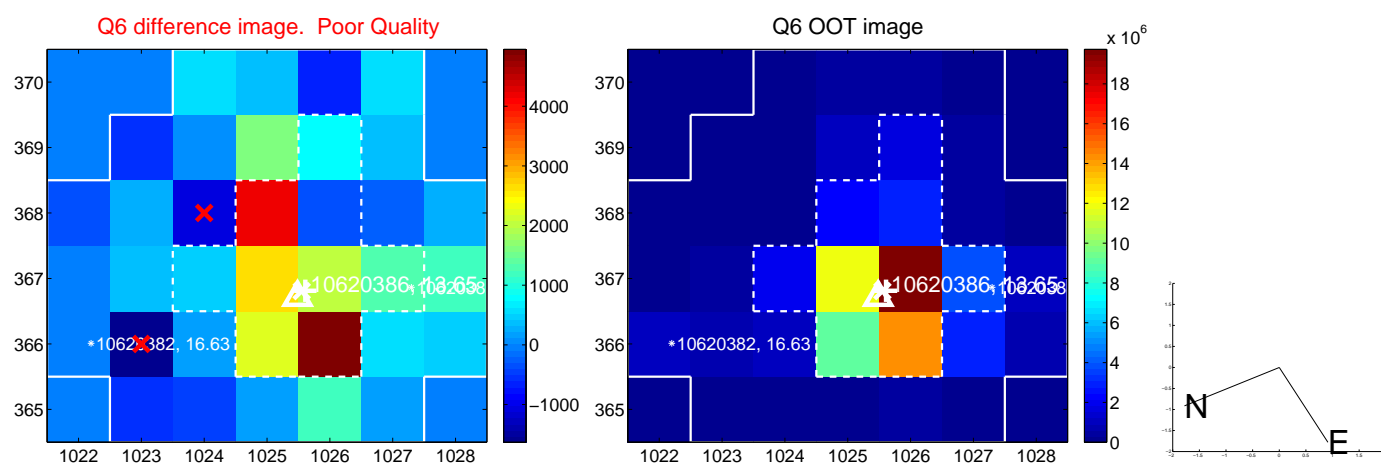
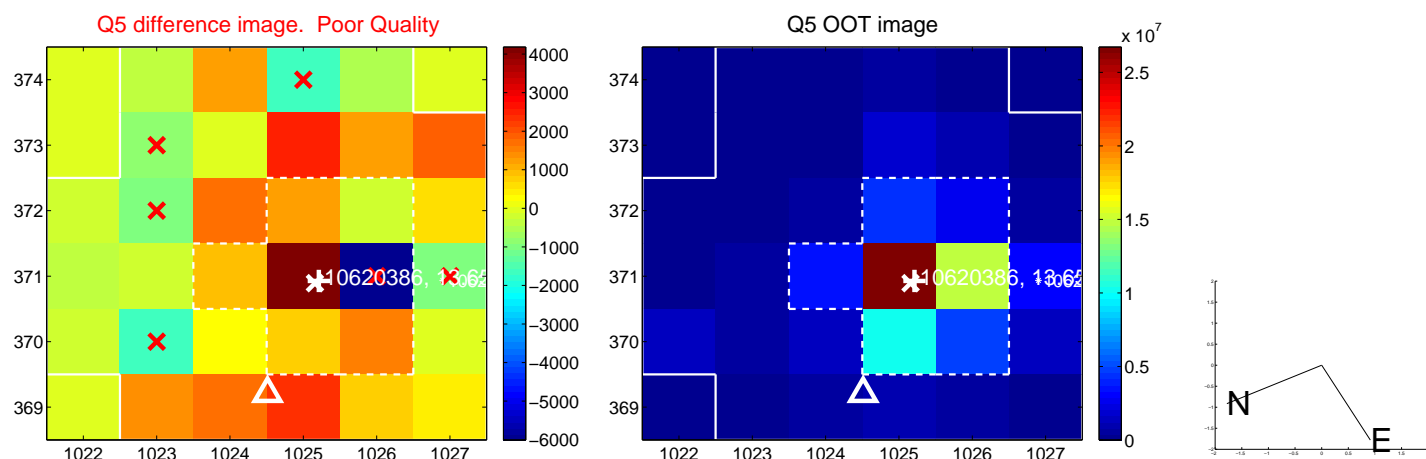


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

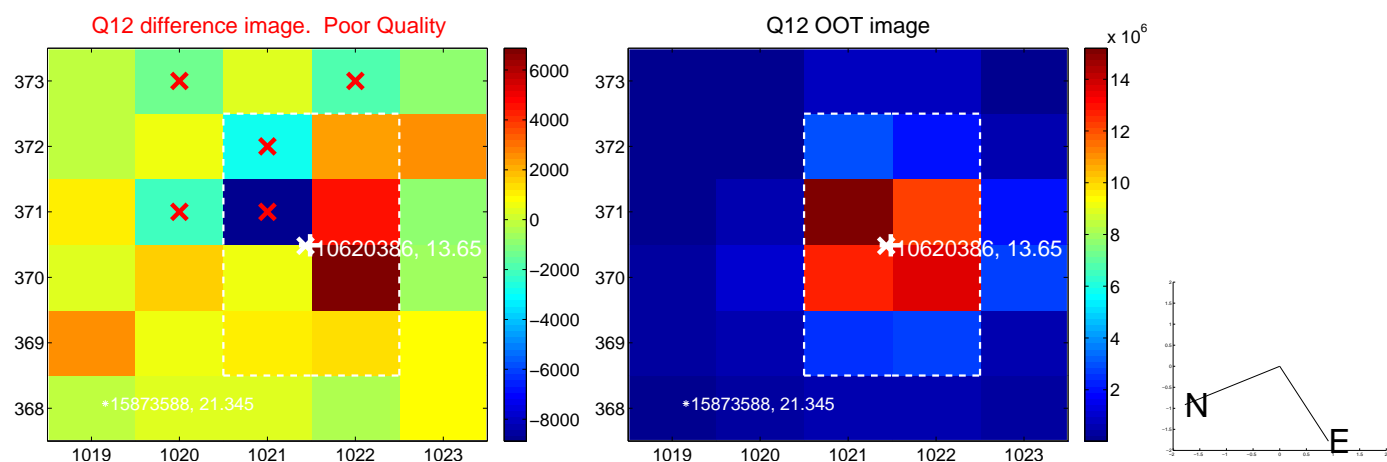
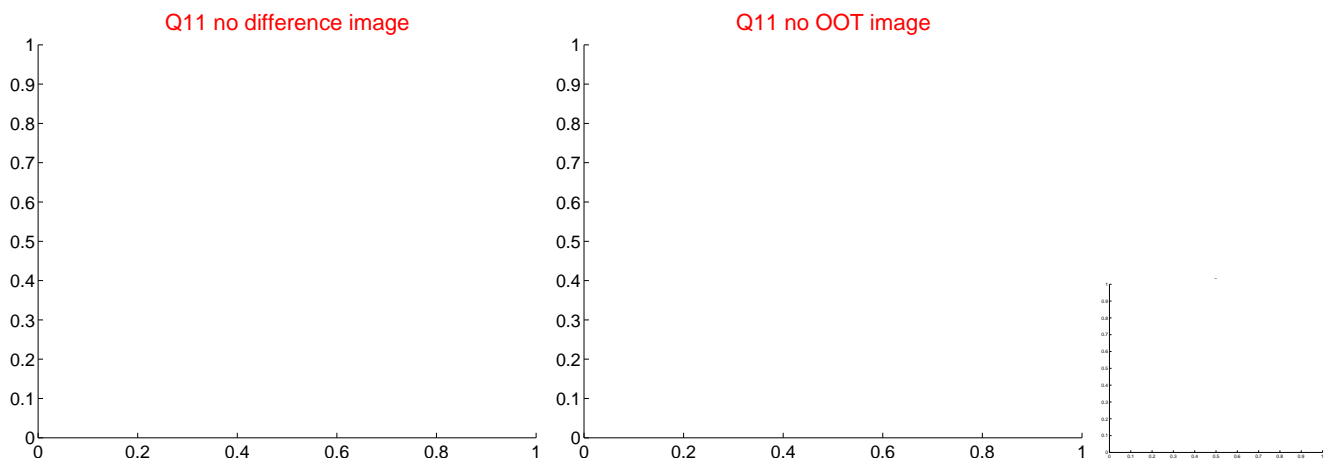
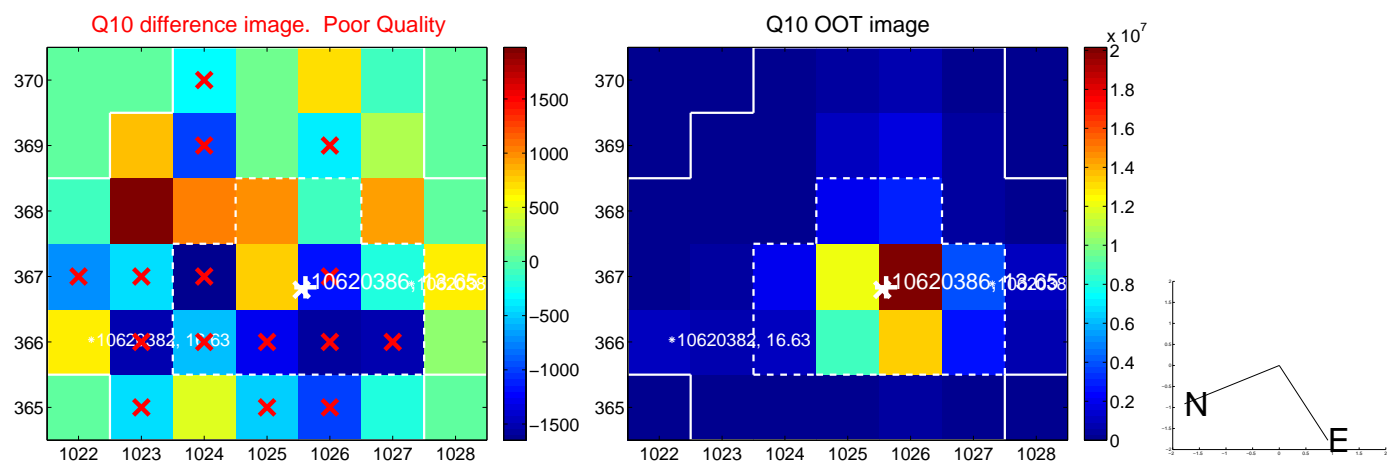
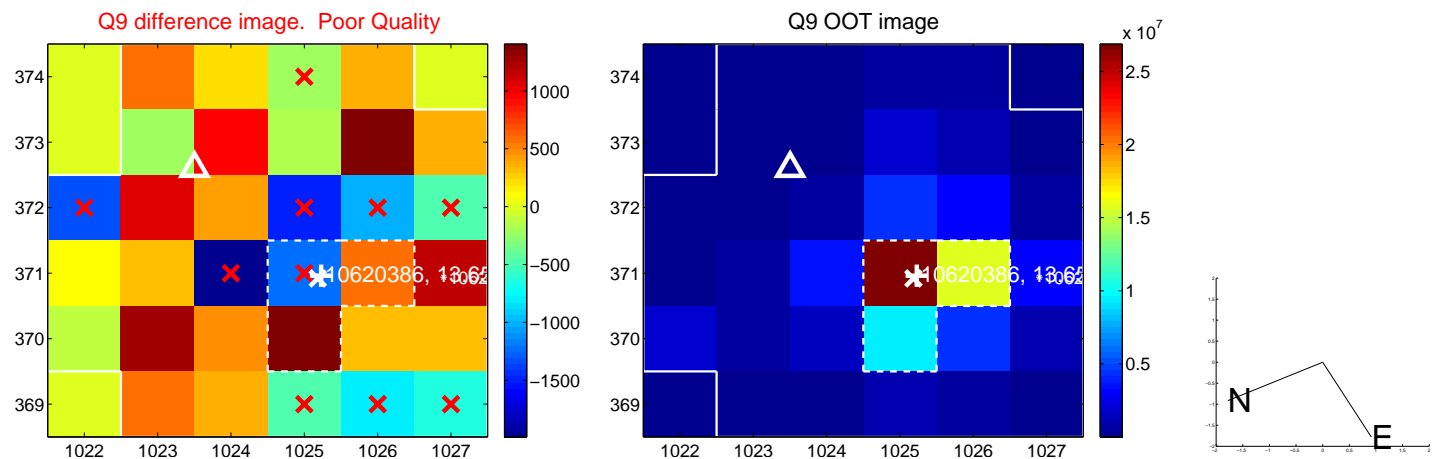
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



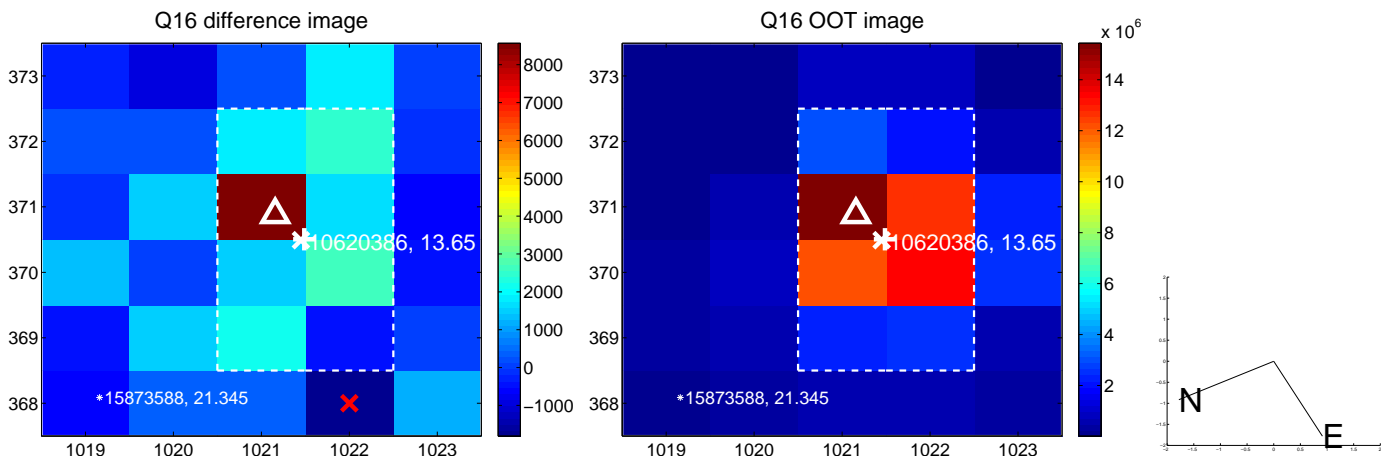
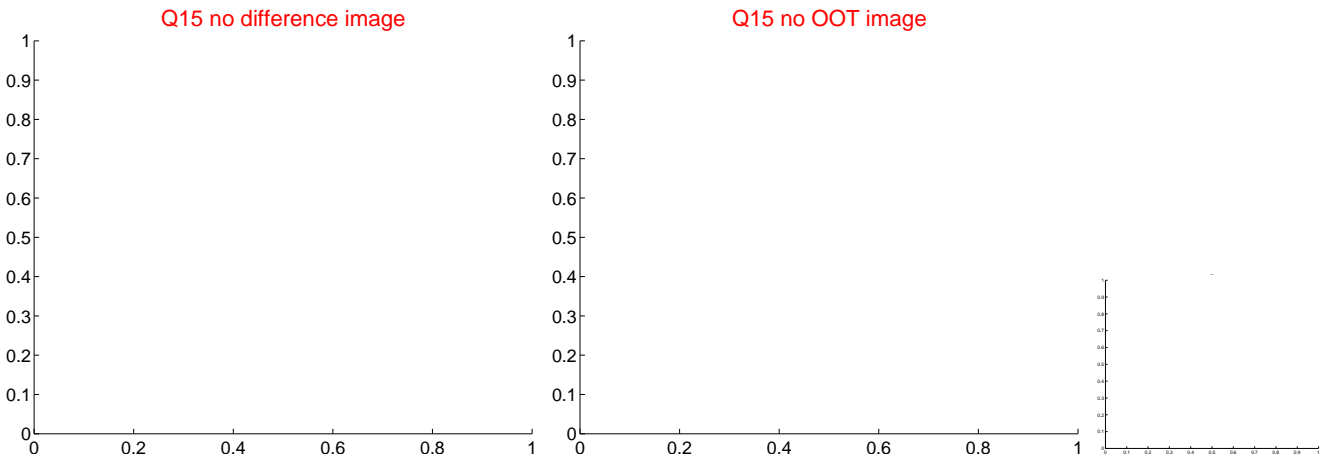
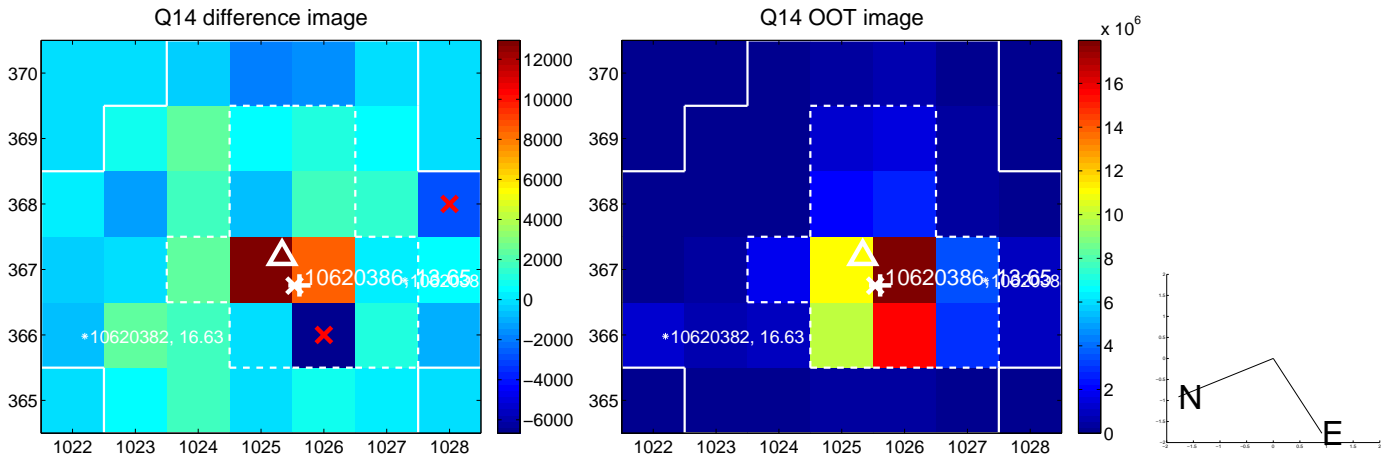
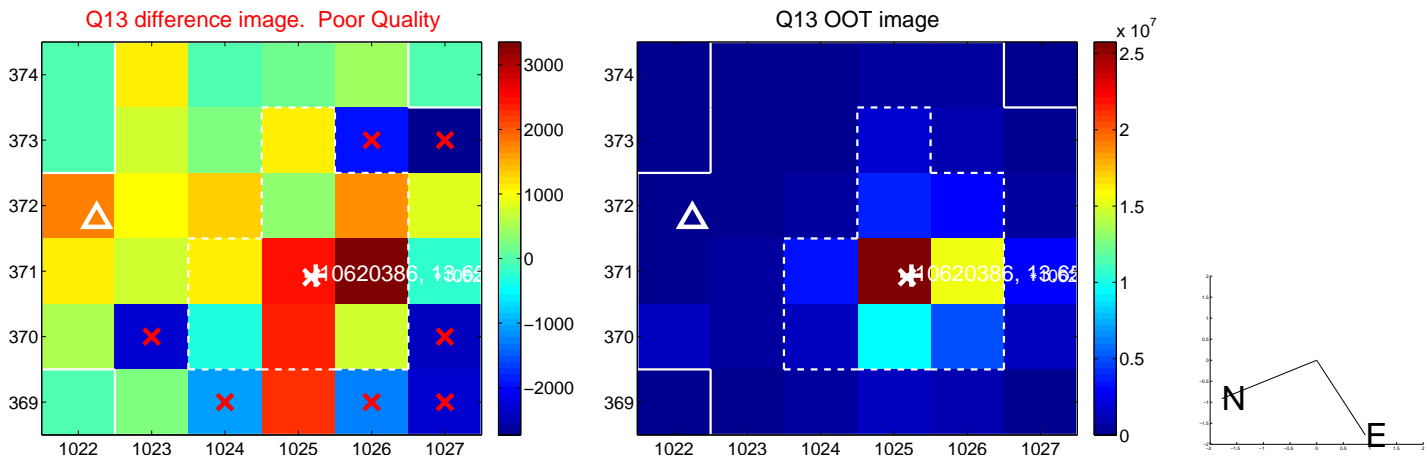
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



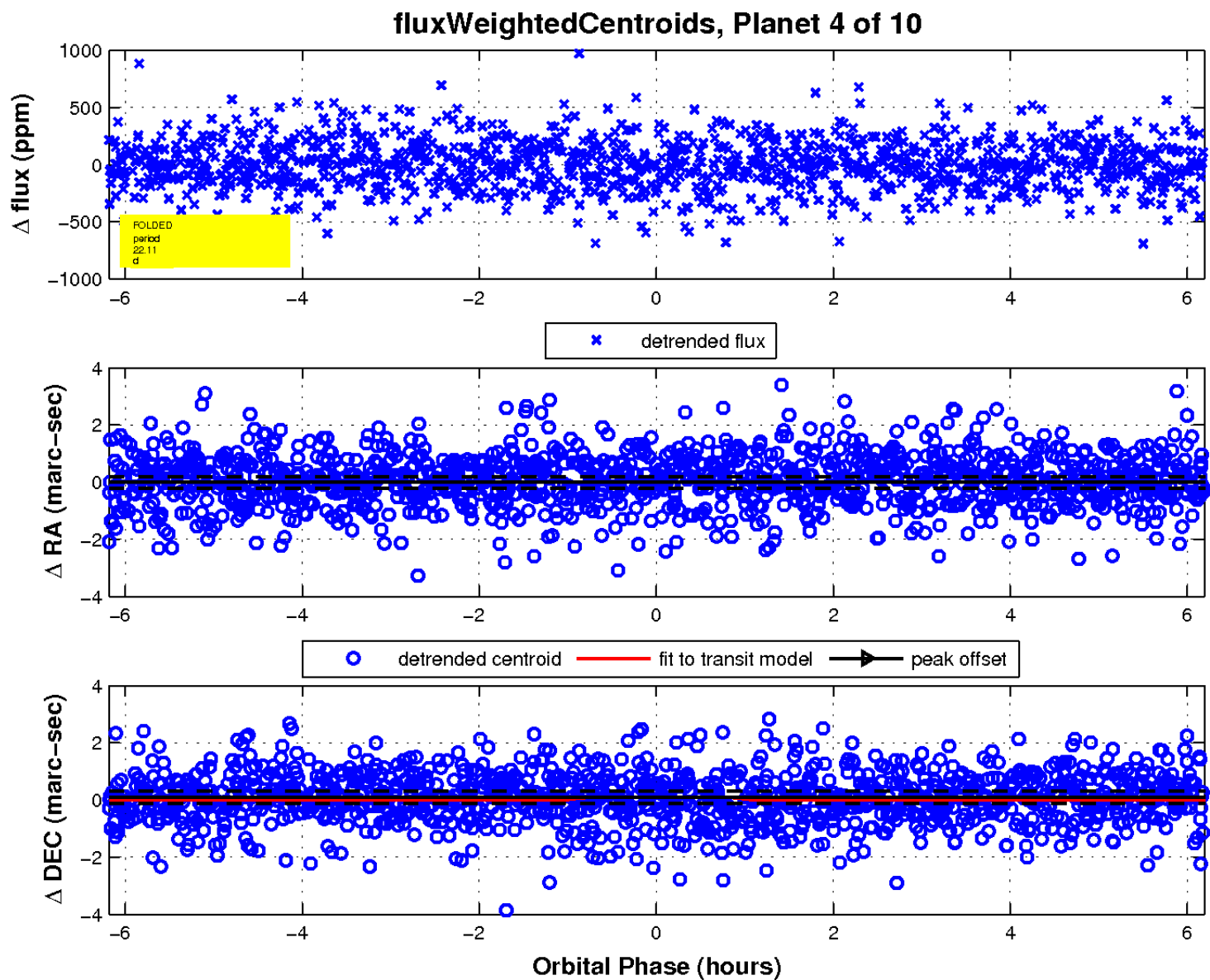
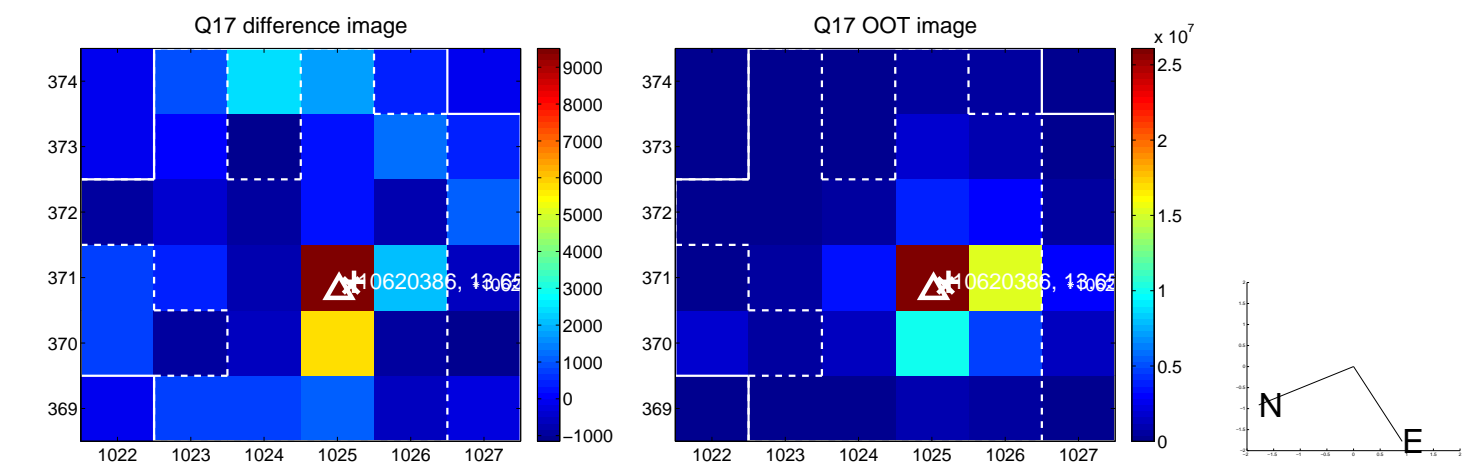
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

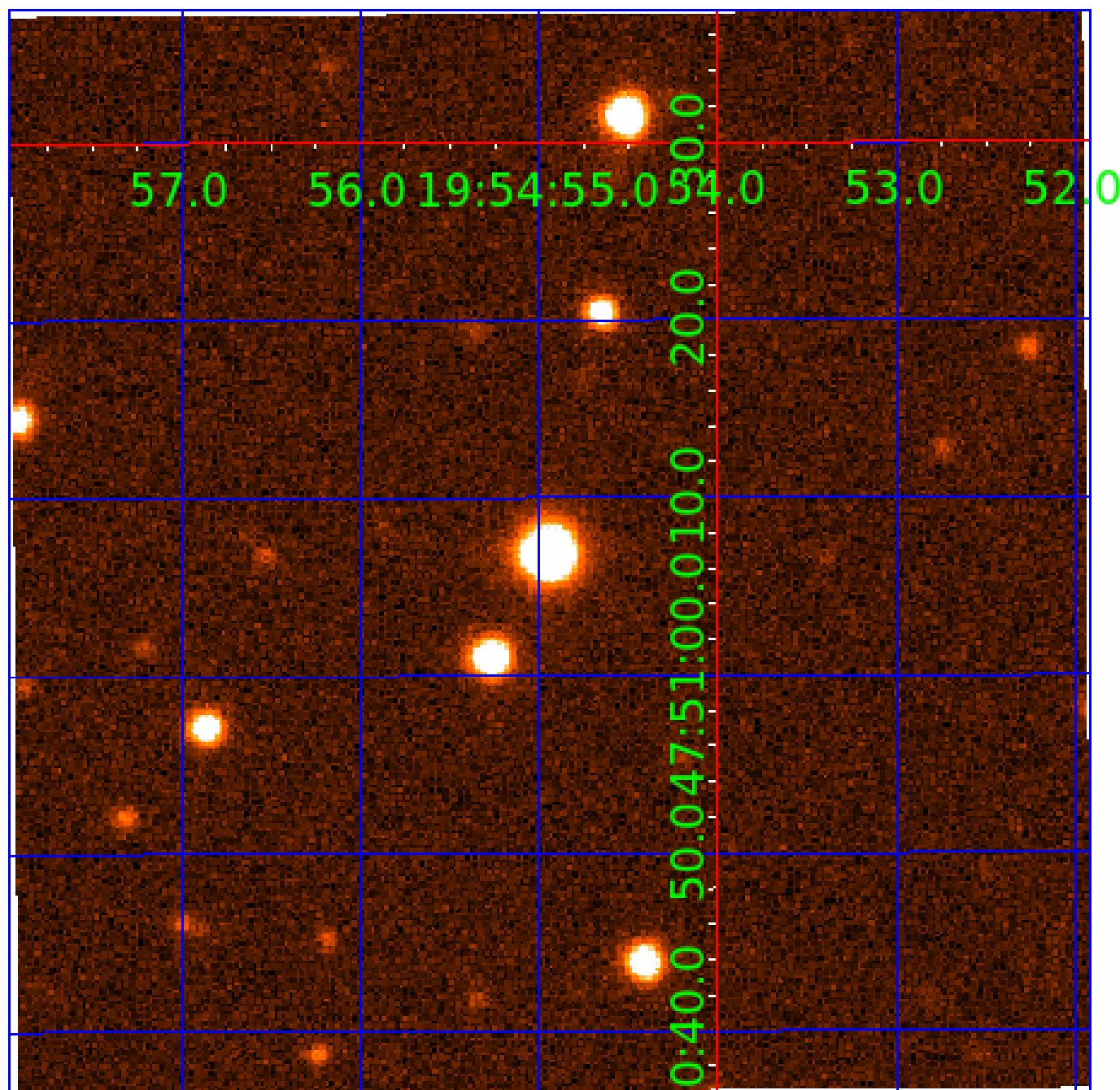


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010620386

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})
010620386-01	OBS	No	1.767922	132.121428	5.8	12.225	7.9	2.4	1.48	6760	0.38	4364.78
010620386-02	OBS	No	44.080619	166.027943	343.6	2.145	12.5	11.5	1.48	6760	2.95	59.92
010620386-03	OBS	No	48.202635	163.525750	465.8	2.026	11.2	9.4	1.48	6760	3.40	53.19
010620386-04	OBS	No	22.111977	133.011494	313.4	2.066	11.3	10.7	1.48	6760	2.94	150.34
010620386-05	OBS	No	157.912847	247.435004	263.1	5.144	9.8	9.7	1.48	6760	2.71	10.93
010620386-06	OBS	No	282.834750	152.515978	274.3	3.433	8.8	9.1	1.48	6760	2.72	5.03
010620386-07	OBS	No	18.357959	145.864348	253.8	2.290	10.9	10.9	1.48	6760	2.41	192.67
010620386-08	OBS	No	16.002501	147.312204	275.0	2.385	9.2	8.6	1.48	6760	2.77	231.38
010620386-09	OBS	No	35.872668	147.147565	262.3	3.732	8.5	8.7	1.48	6760	2.65	78.87
010620386-10	OBS	No	23.456372	140.582661	266.4	2.684	8.4	7.5	1.48	6760	2.82	138.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010620386-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010620386-09	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
010620386-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

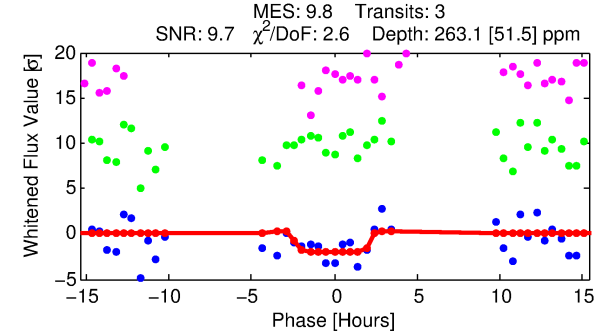
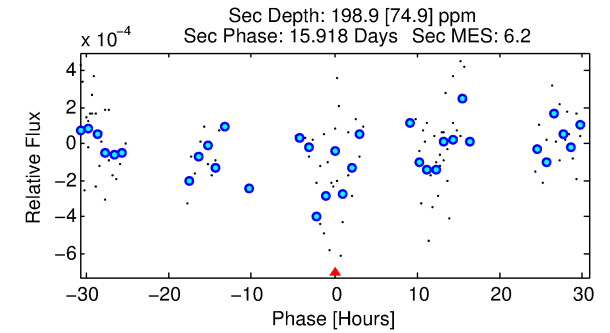
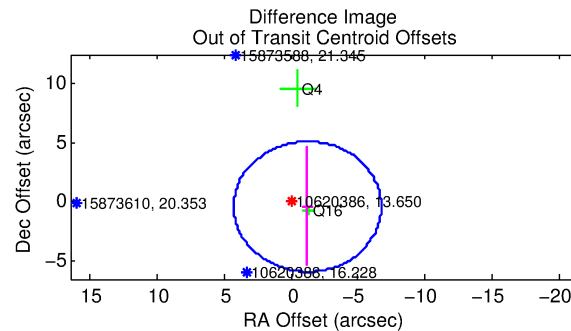
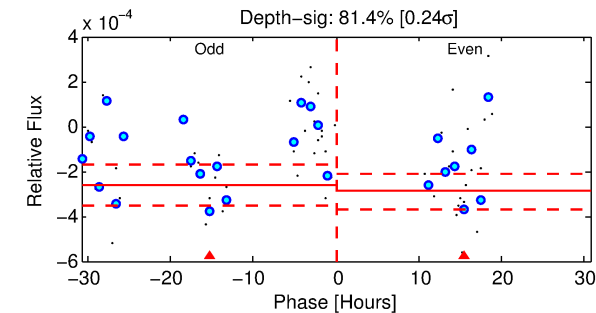
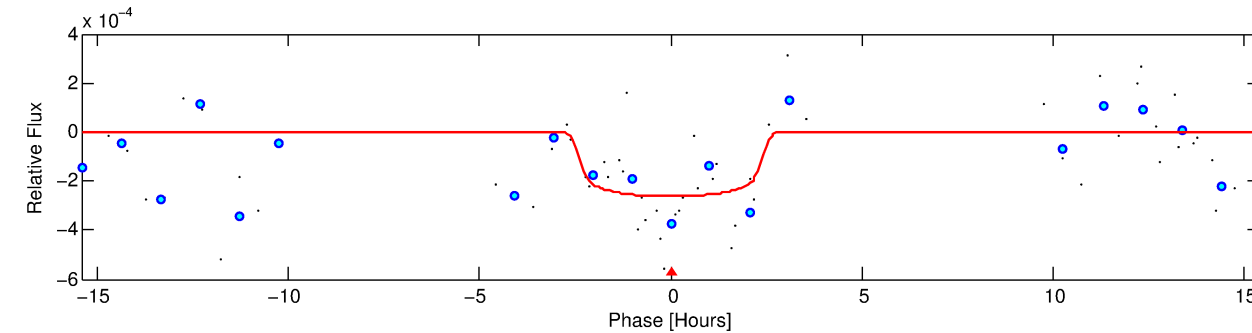
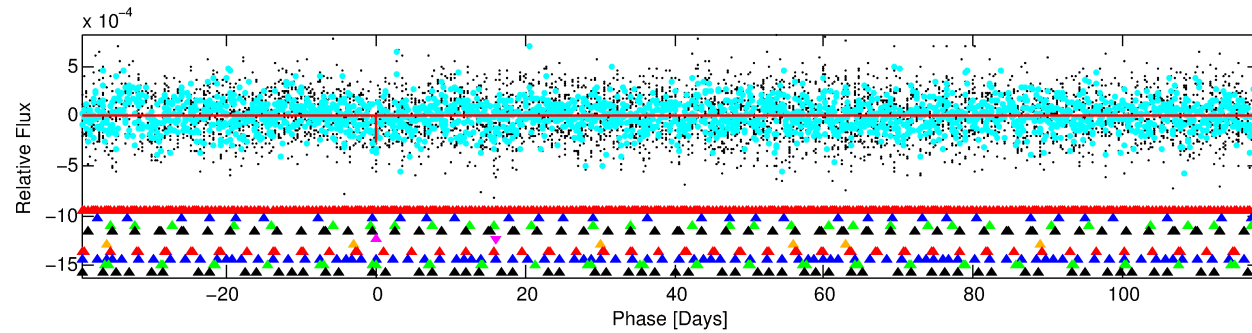
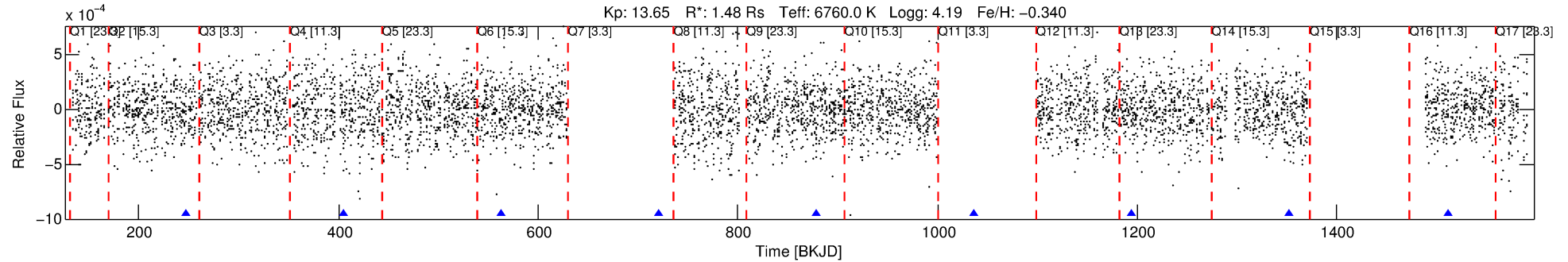
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010620386-05

No Significant Match Found

DV One-Page Summary

KIC: 10620386 Candidate: 5 of 10 Period: 157.913 d



DV Fit Results:

Period = 157.91285 [0.00928] d
Epoch = 247.4350 [0.0419] BKJD
Rp/R* = 0.0167 [0.0108]
a/R* = 132.44 [495.75]
b = 0.85 [1.27]
Seff = 10.93 [3.88]
Teq = 464 [41] K
Rp = 2.71 [1.90] Re
a = 0.6131 [0.1399] AU
Ag = 5619.93 [7797.55] [0.72 σ]
Teffp = 6207 [2104] K [2.73 σ]

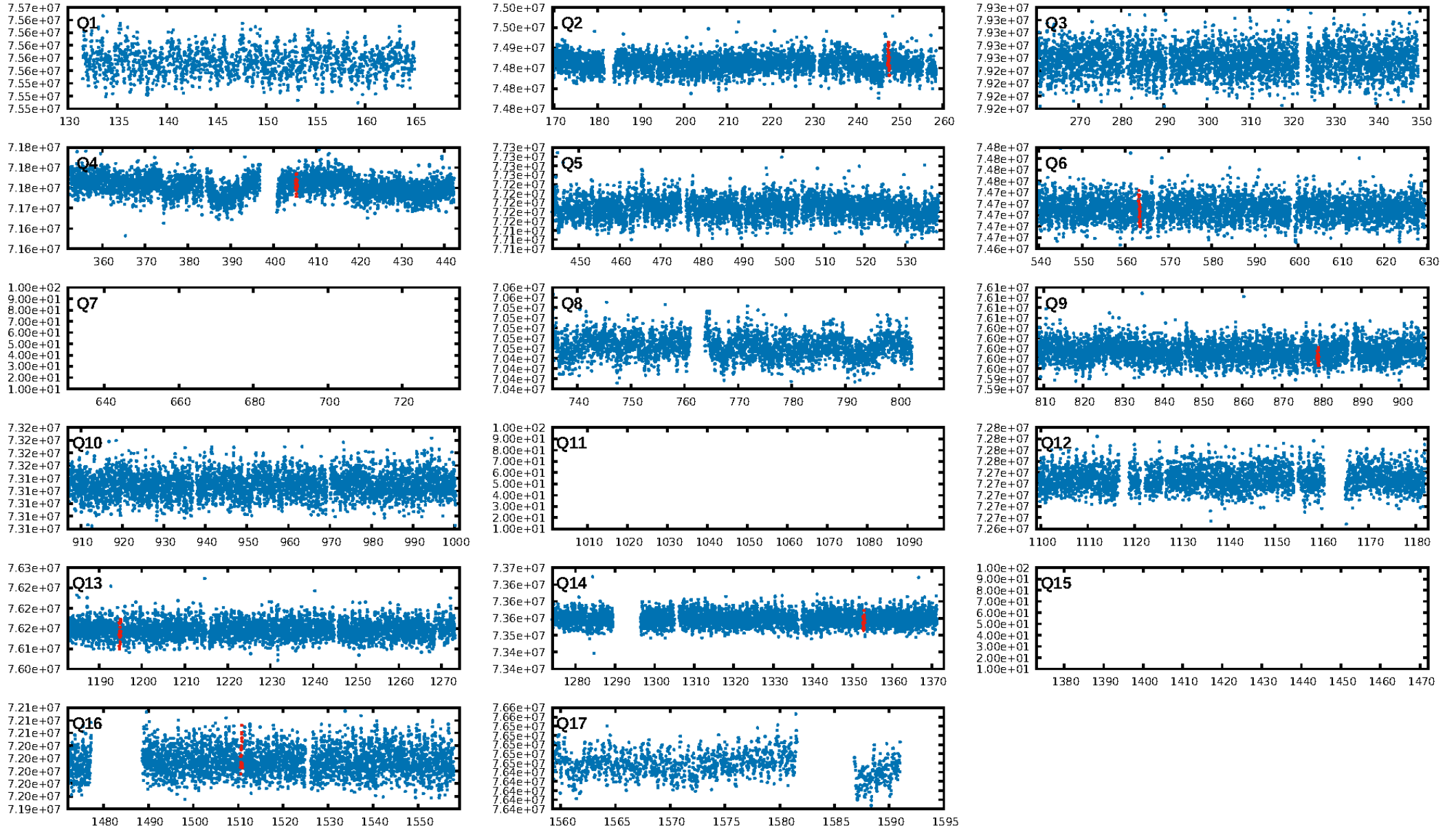
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [476.22 σ]
LongPeriod-sig: 100.0% [484.74 σ]
ModelChiSquare2-sig: 85.8%
ModelChiSquareGof-sig: 58.5%
Bootstrap-pfa: 1.01e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -12.3
Centroid-sig: 52.7%
Centroid-so: 1.156 arcsec [0.86 σ]
OotOffset-rm: 1.273 arcsec [0.69 σ]
KicOffset-rm: 1.282 arcsec [0.45 σ]
OotOffset-st: 0/0/2/0 [2]
KicOffset-st: 0/0/2/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.43 [3/7]

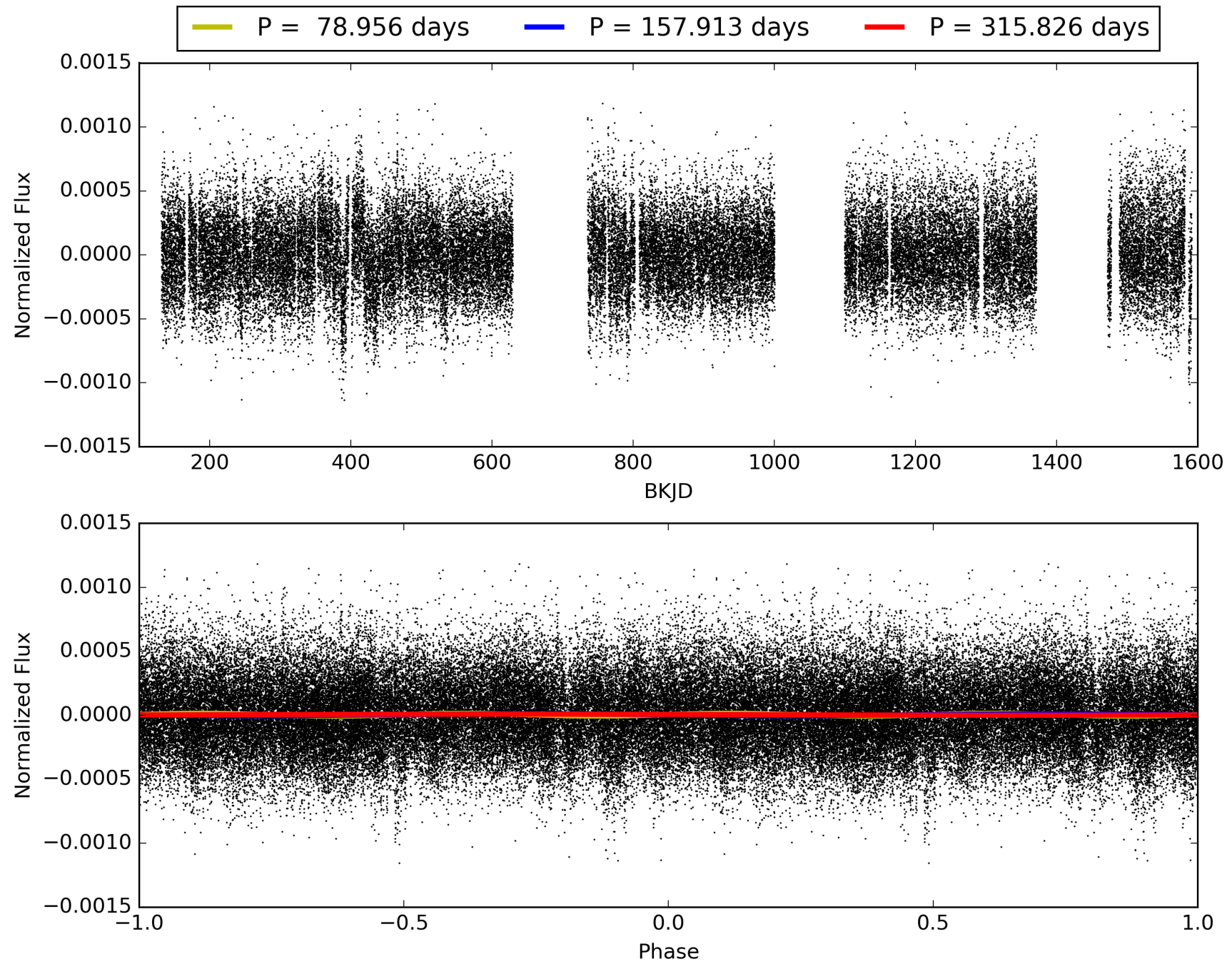
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:19:58 Z

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

TCE 010620386-05, PDC Light Curves

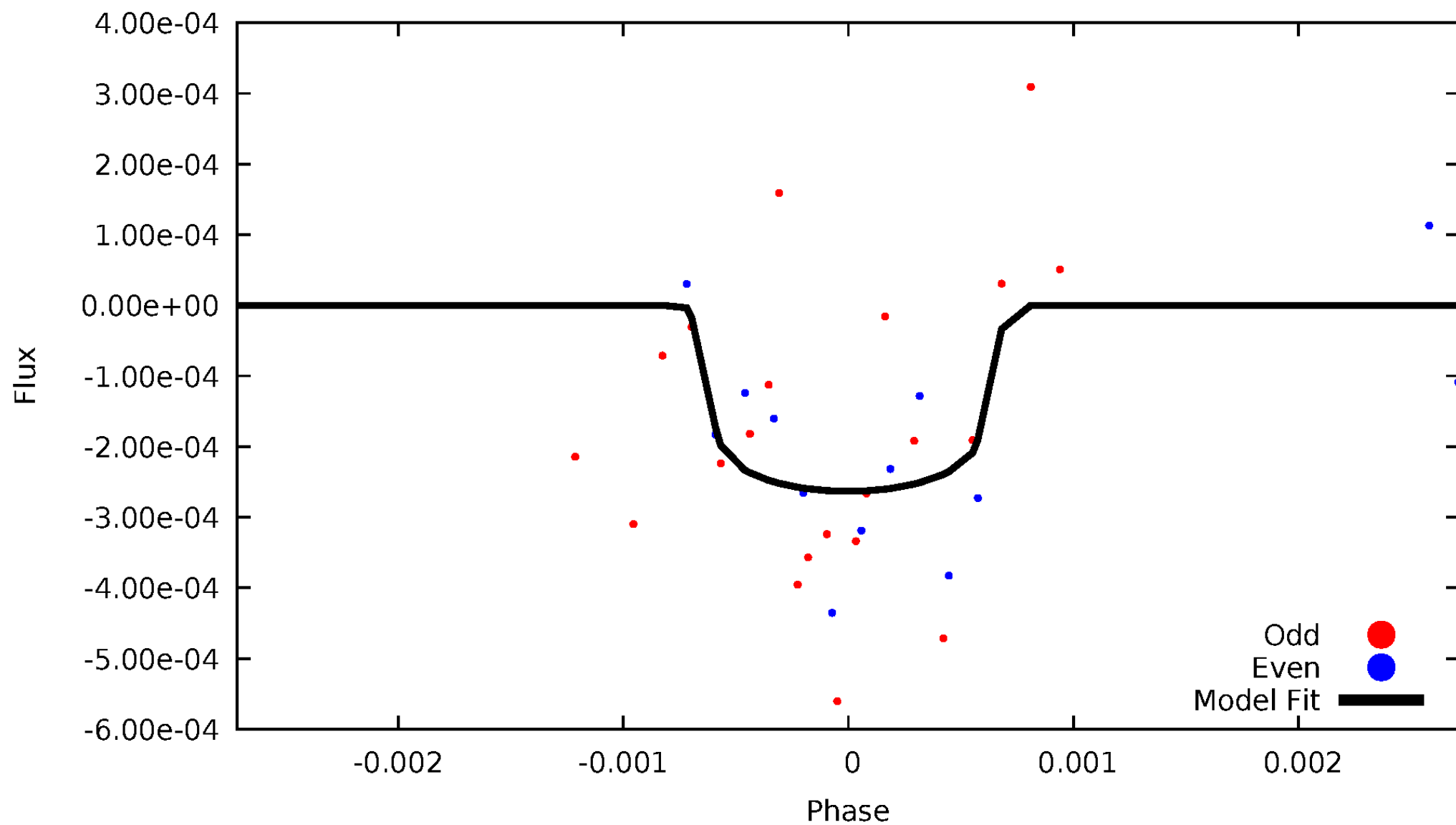


TCE 010620386-05



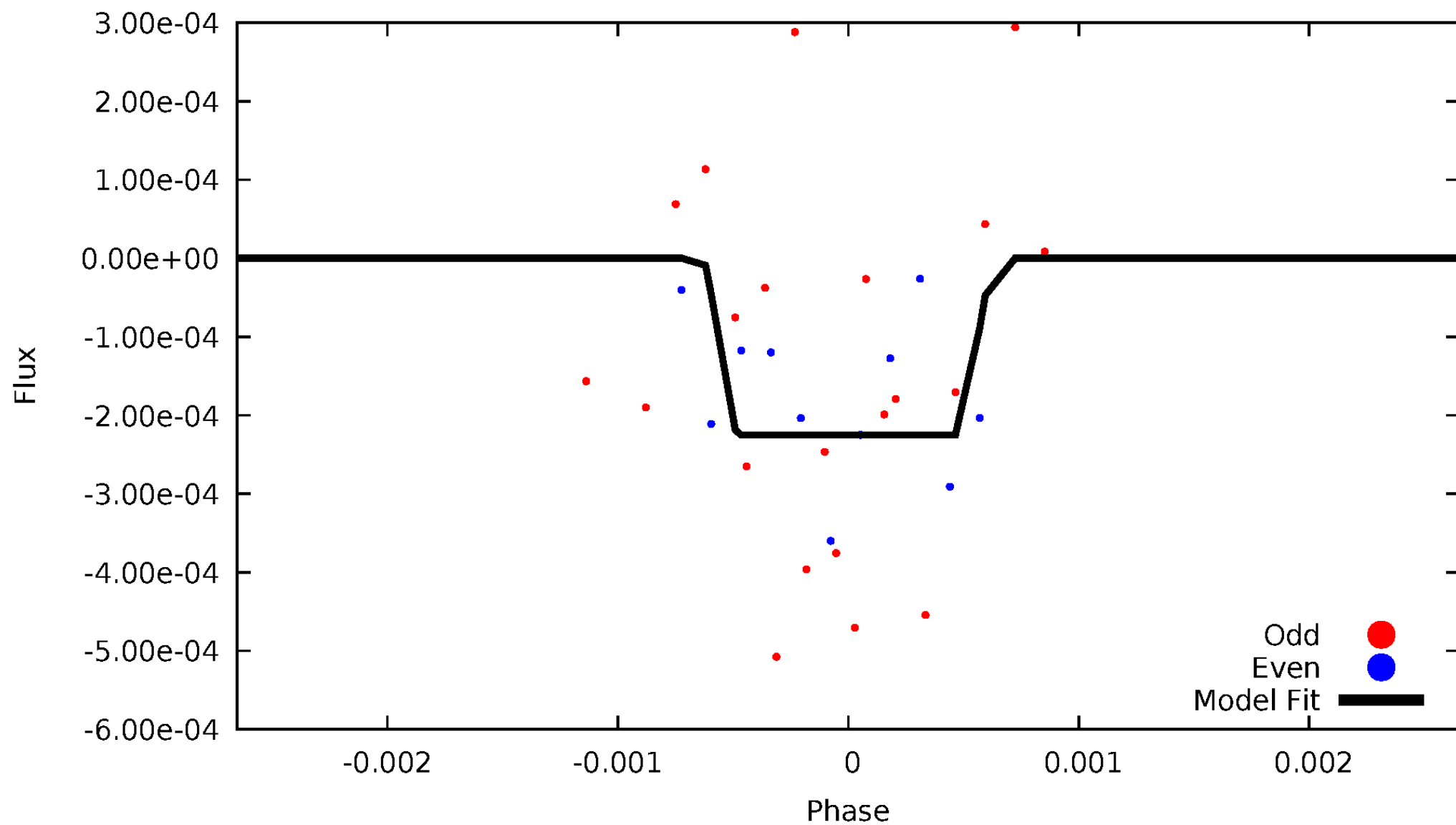
DV Odd/Even

TCE 010620386-05



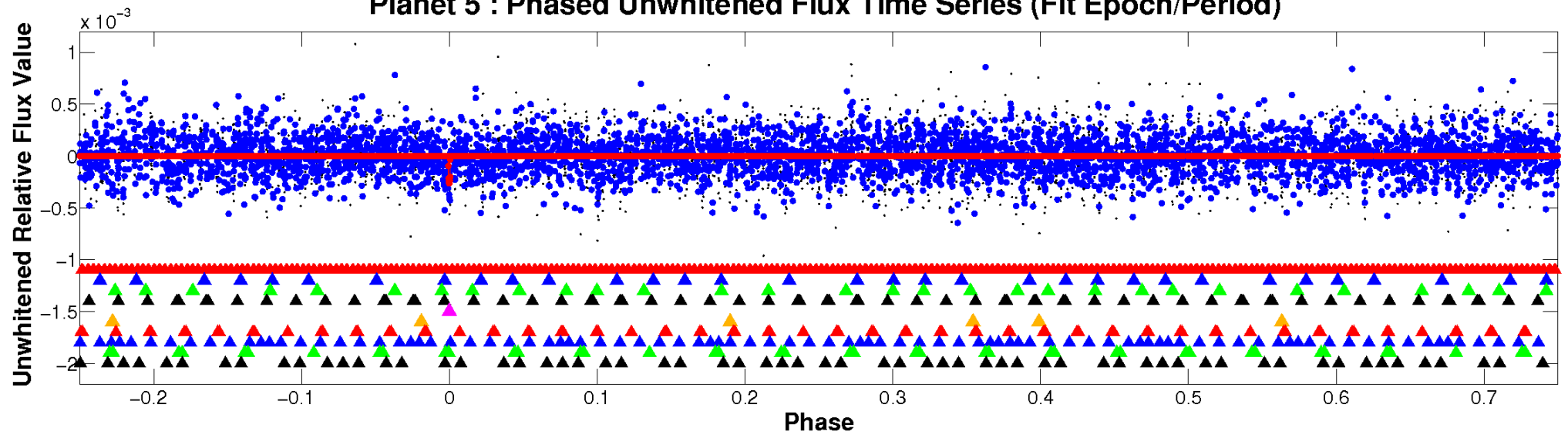
ALT Odd/Even

TCE 010620386-05

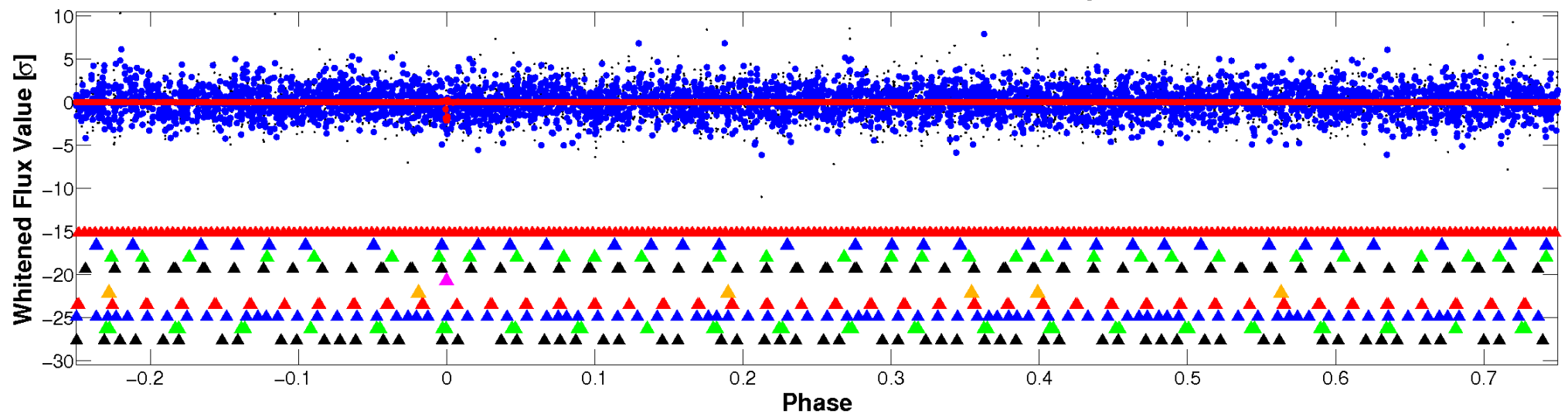


Non-Whitened Vs. Whitened Light Curve

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

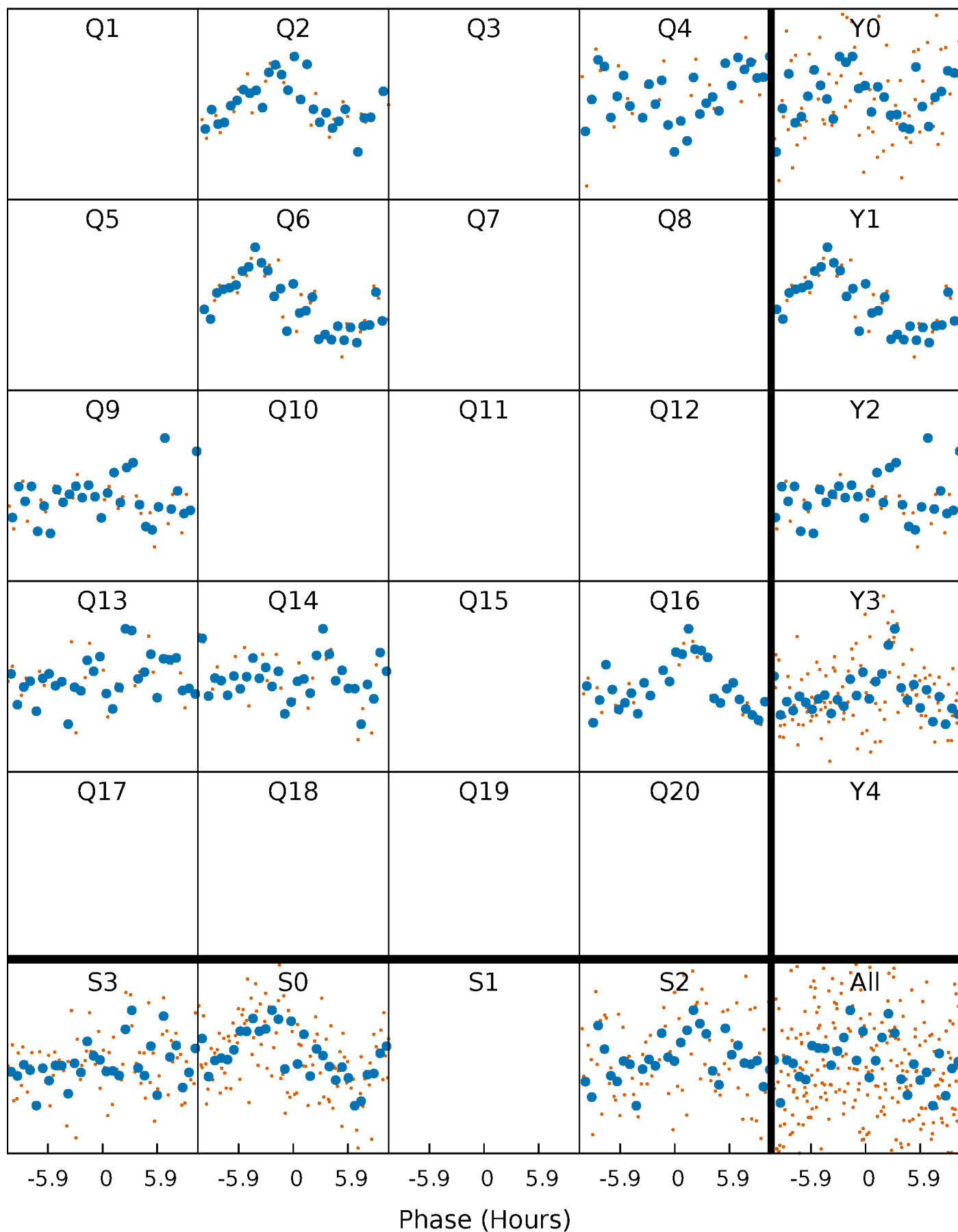


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



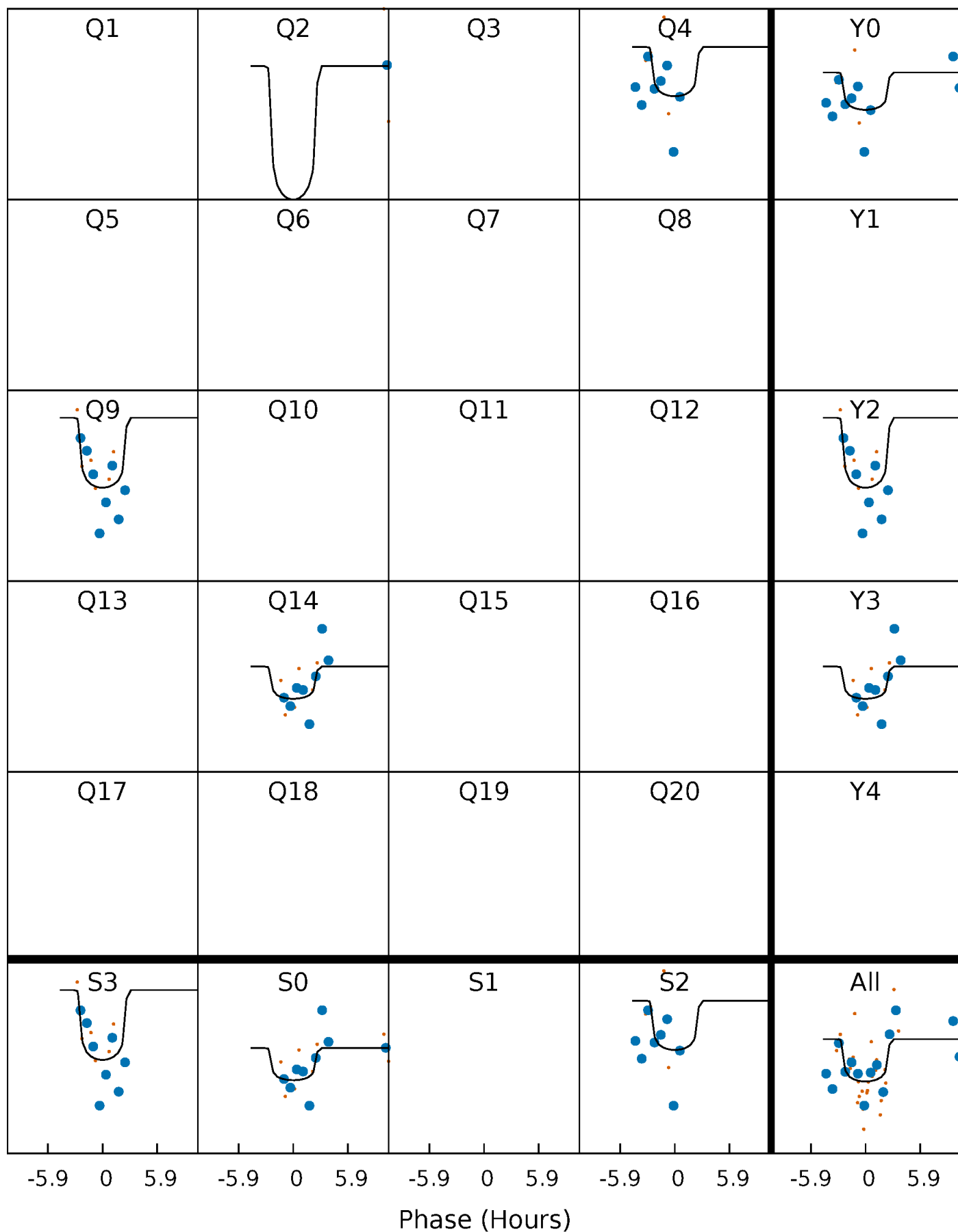
PDC Quarter-Phased Transit Curves

TCE 010620386-05 $P=157.912847$ Days $T_0=247.435004$ (BKJD)



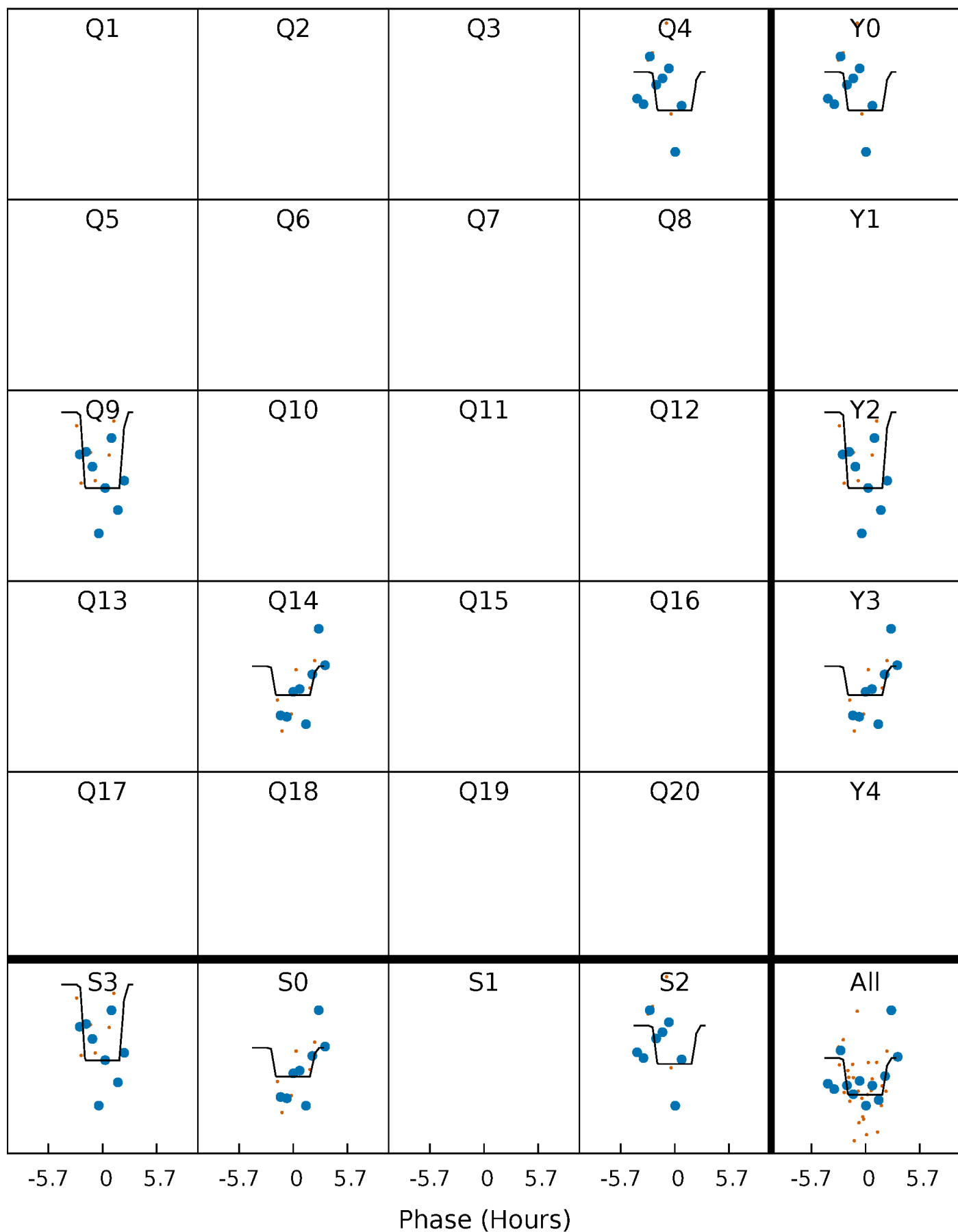
DV Quarter-Phased Transit Curves

TCE 010620386-05 $P=157.912847$ Days $T_0=247.435004$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

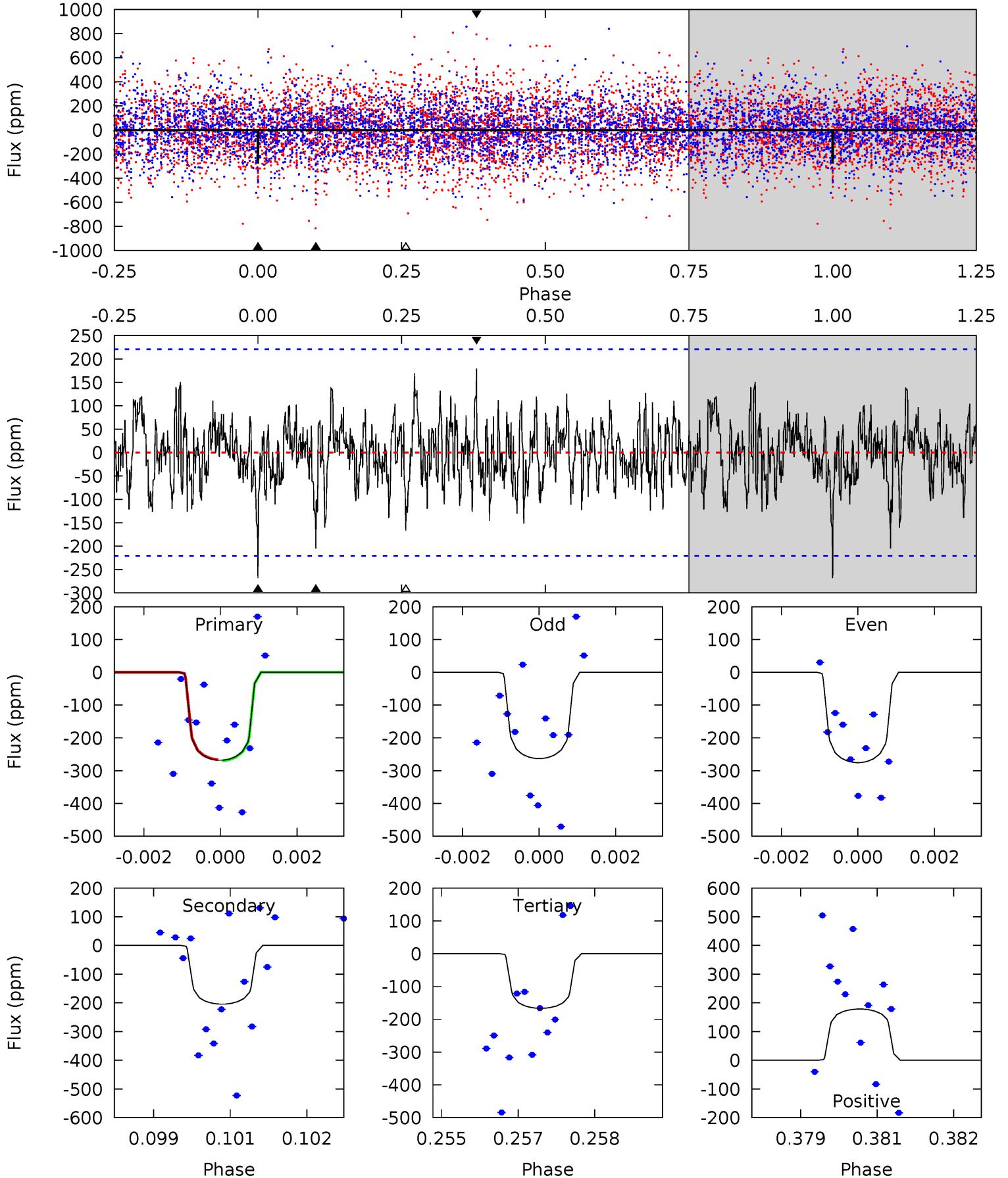
TCE 010620386-05 P=157.917154 Days $T_0=247.418632$ (BKJD)



DV Model-Shift Uniqueness Test

010620386-05, P = 157.912847 Days, E = 89.522157 Days

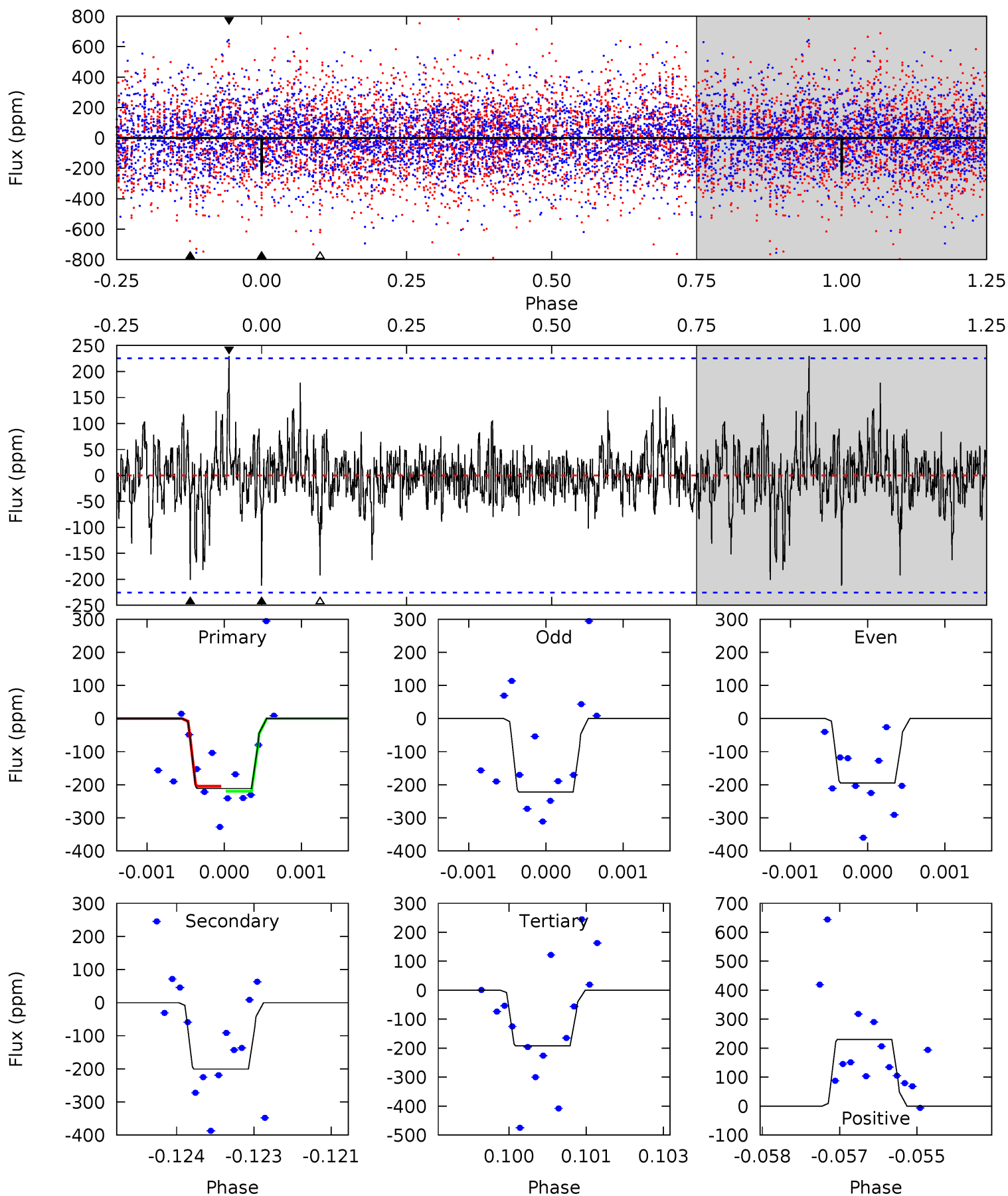
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.52	4.97	4.05	4.34	5.38	3.17	1.34	2.47	2.18	0.92	0.63	0.15	1.00	0.40	0.04



Alt Model-Shift Uniqueness Test

010620386-05, P = 157.917154 Days, E = 89.501478 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.07	4.81	4.61	5.51	5.40	3.21	1.07	0.47	-0.44	0.21	-0.70	0.33	1.05	0.52	0.18



Stellar Parameters For KIC 010620386

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6760^{+189}_{-236}	$4.187^{+0.158}_{-0.175}$	$-0.340^{+0.250}_{-0.300}$	$1.482^{+0.410}_{-0.336}$	$1.237^{+0.170}_{-0.208}$	$0.536^{+0.500}_{-0.263}$
	+3%/-3%	+4%/-4%	+74%/-88%	+28%/-23%	+14%/-17%	+93%/-49%
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 010620386-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-204 ± 41	$2.79^{+1.68}_{-1.47}$	647^{+46}_{-43}	6068^{+3559}_{-1170}	5273^{+20498}_{-3305}
Alt.	-201 ± 42	$2.73^{+1.61}_{-1.57}$	649^{+46}_{-42}	6157^{+4482}_{-1229}	5390^{+26280}_{-3389}

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

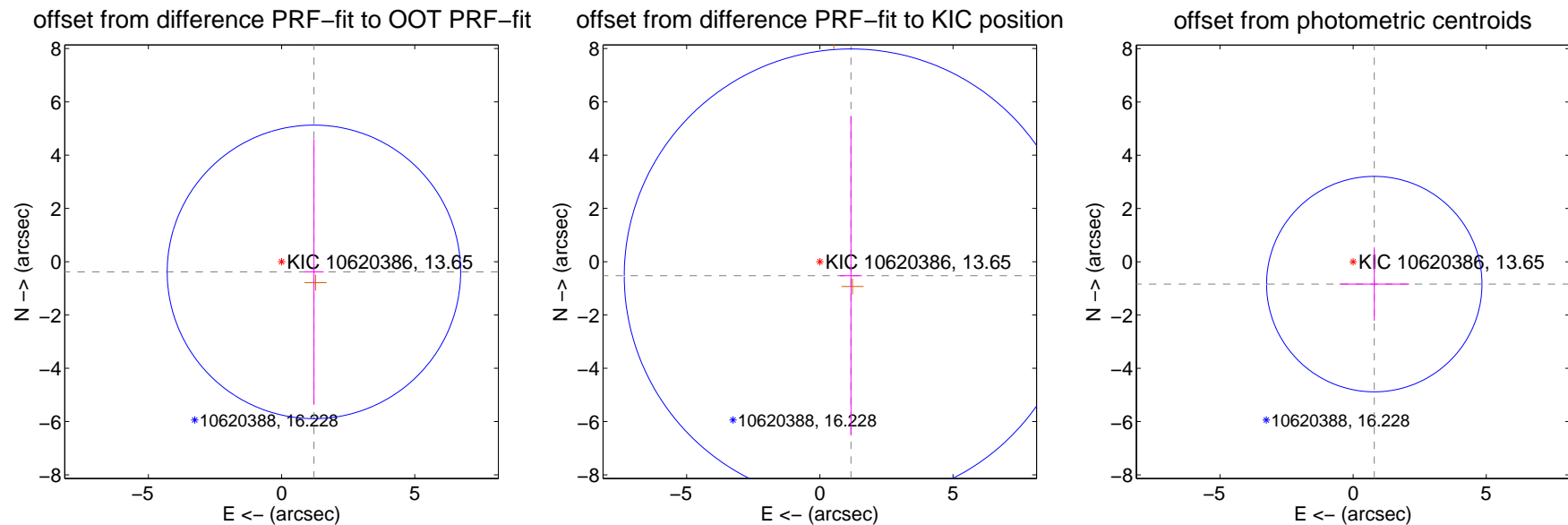
DV Centroid Data

Supplemental centroid analysis for 010620386-05. Kepler magnitude: 13.65. Transit SNR 9.66

There are 0 quarters with good PRF difference image offsets

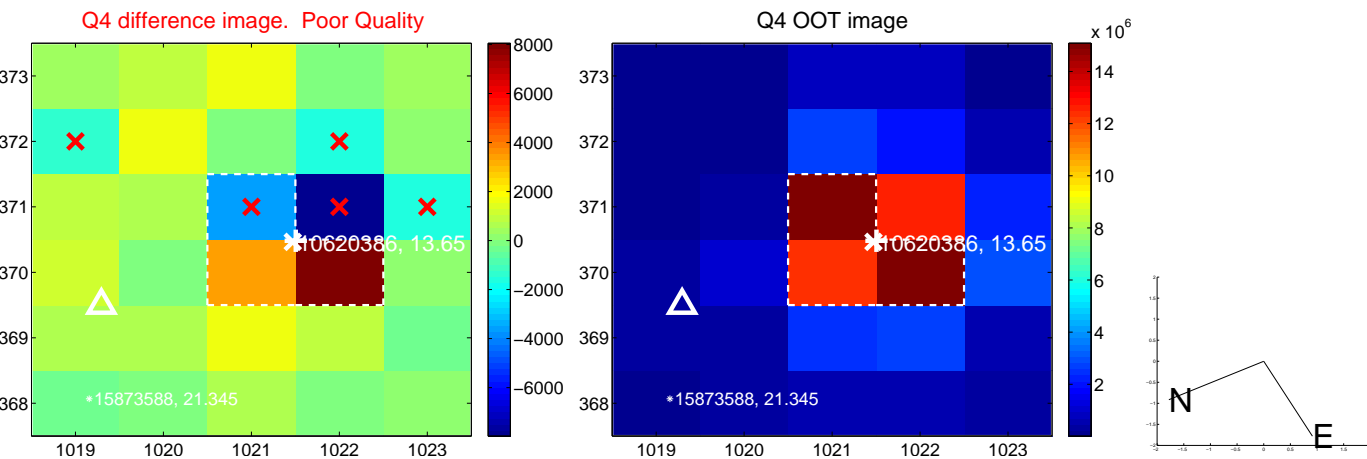
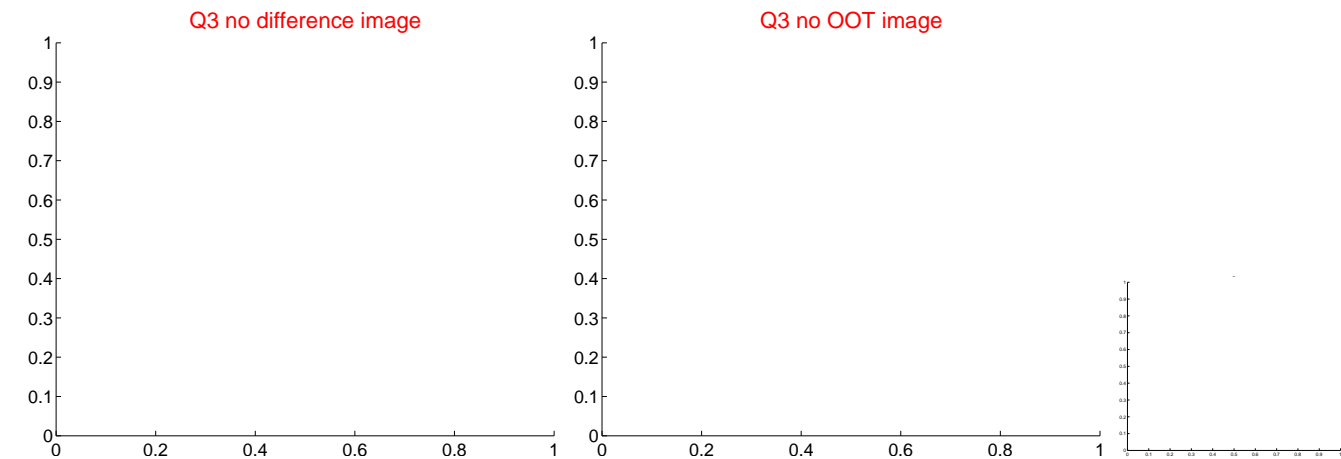
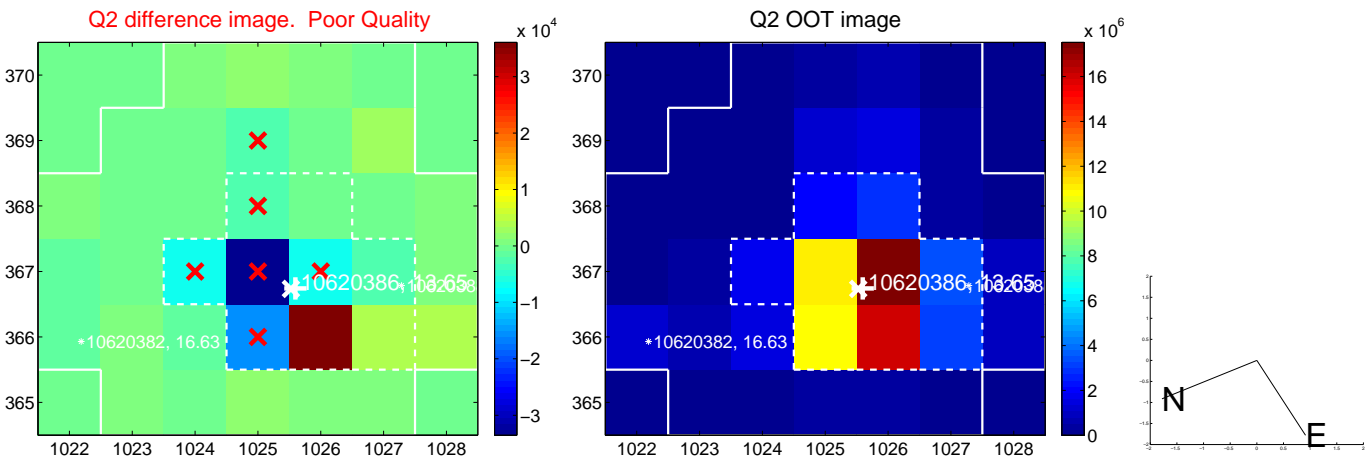
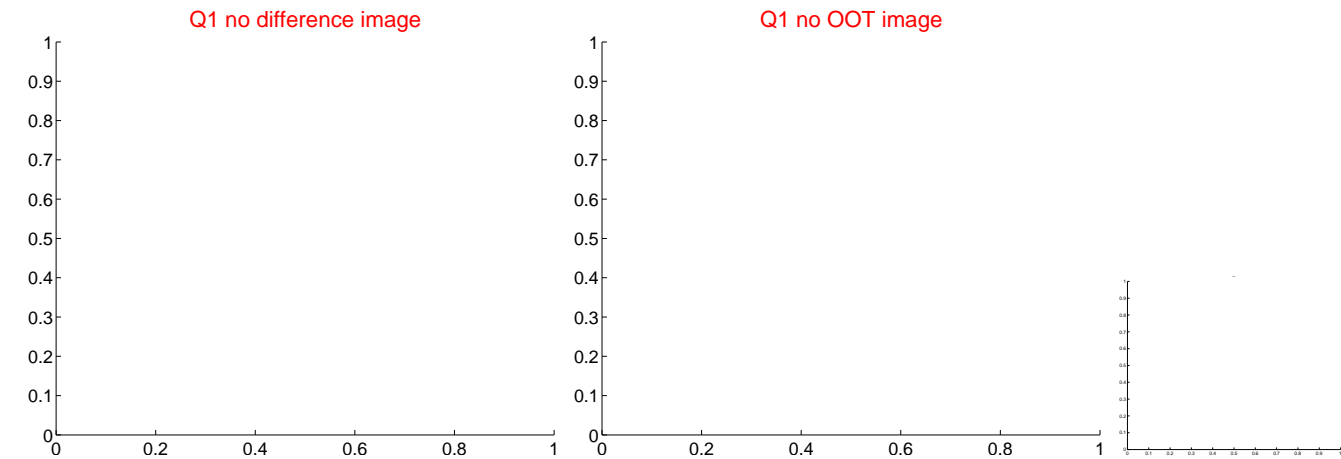
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.273 ± 1.836	0.69	-1.214 ± 0.364	-0.382 ± 4.978
PRF-fit source offset from KIC position	1.282 ± 2.837	0.45	-1.168 ± 0.411	-0.527 ± 6.001
photometric centroid source offset	1.16 ± 1.35	0.86	-0.80 ± 1.31	-0.84 ± 1.38

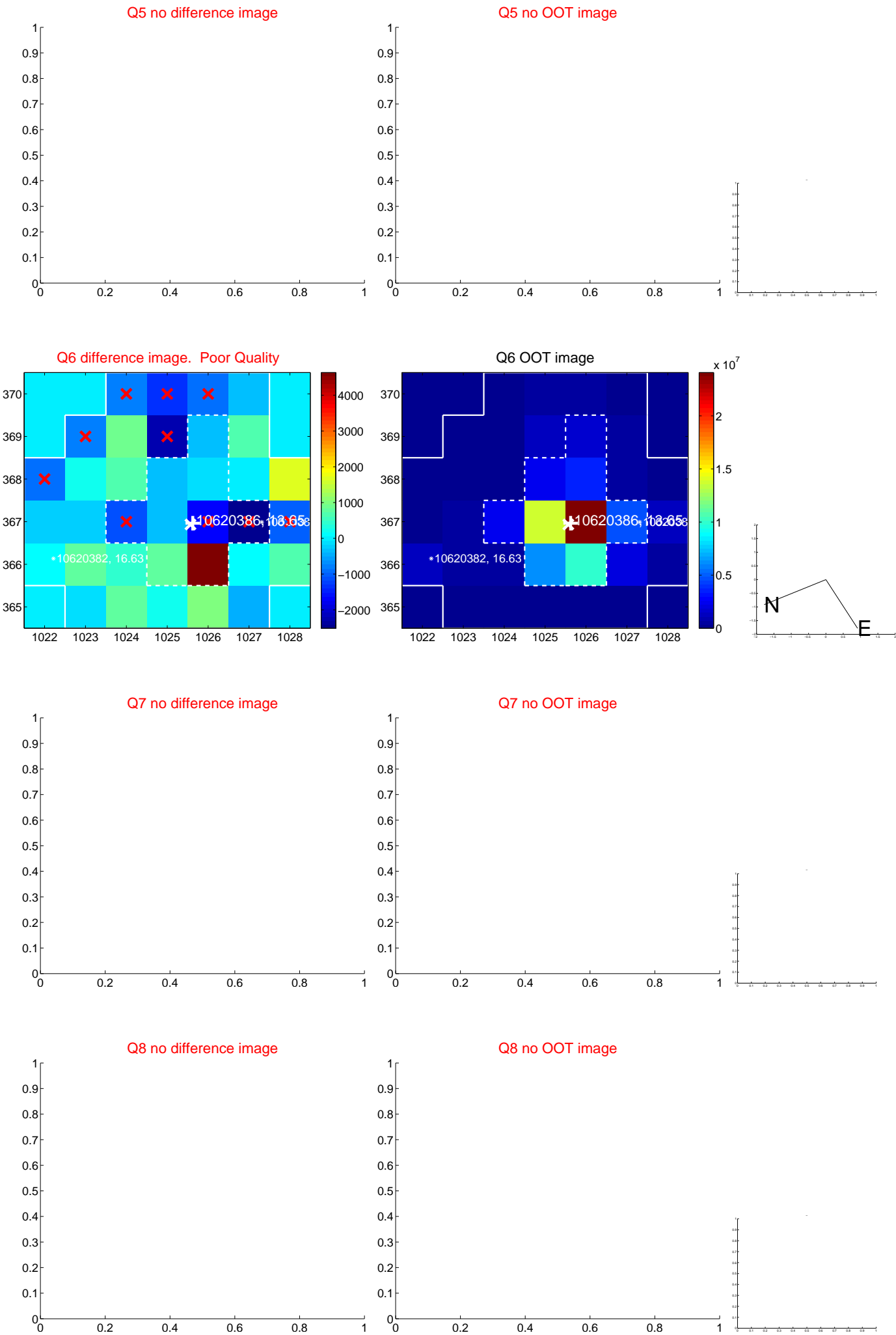


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

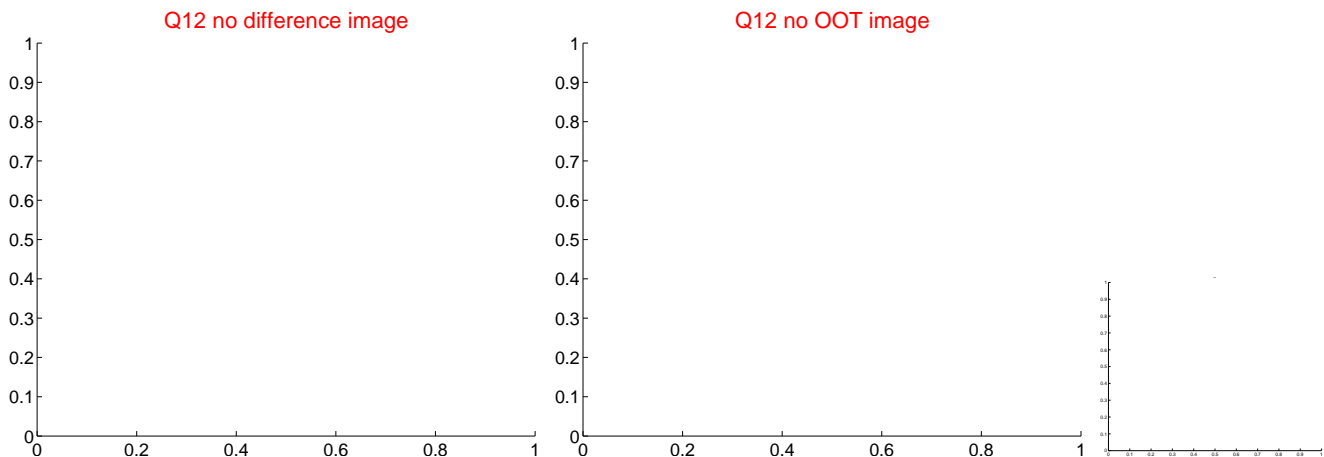
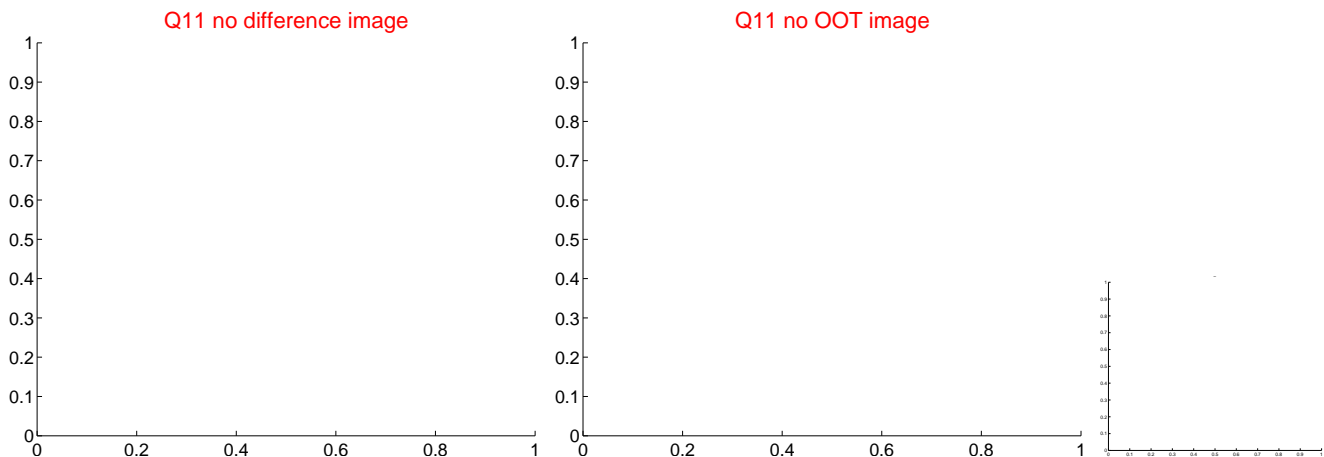
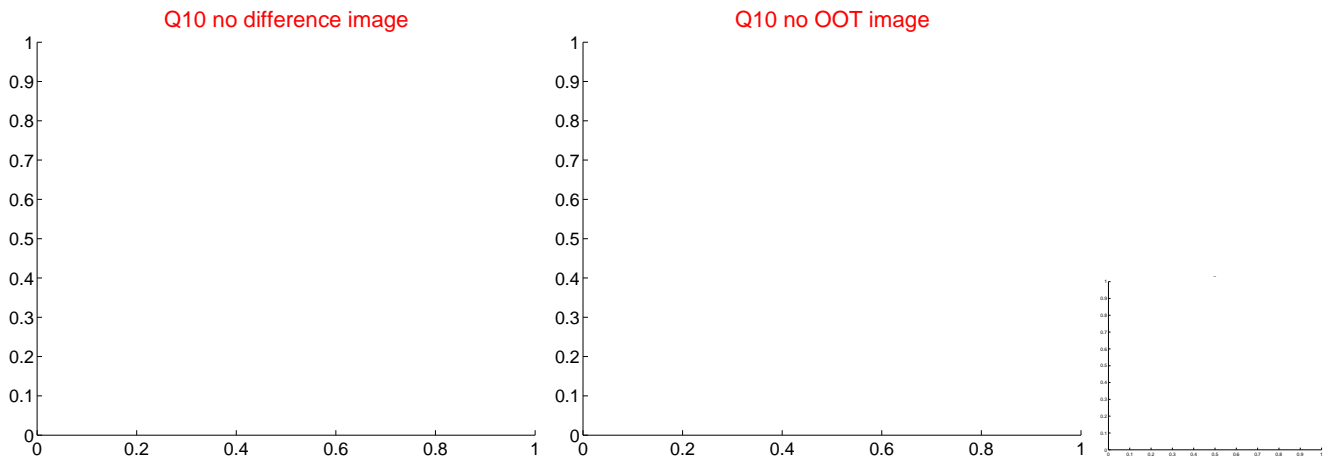
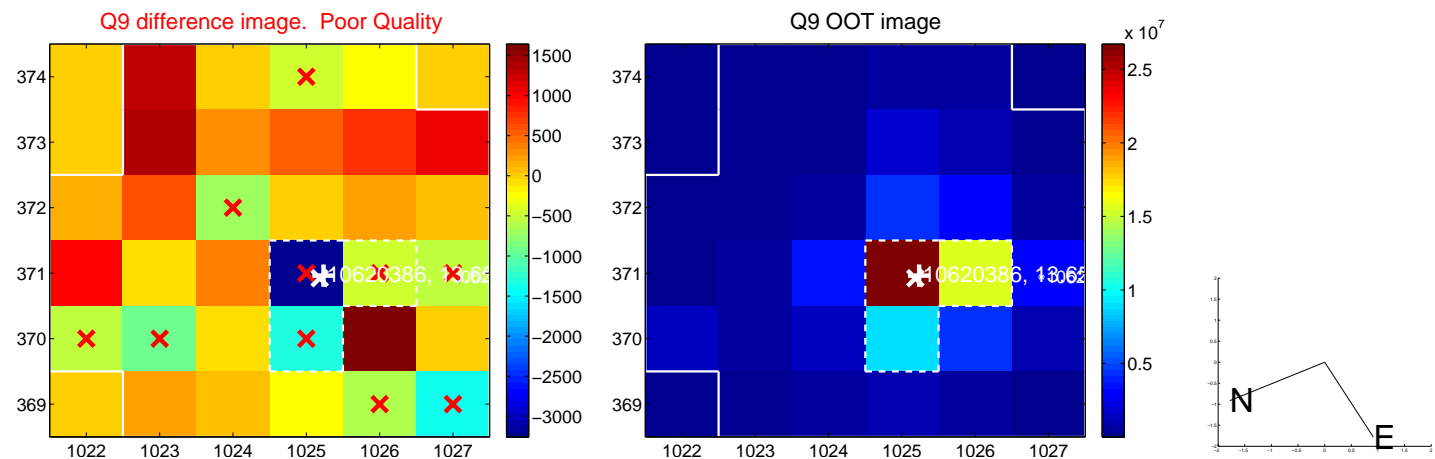
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



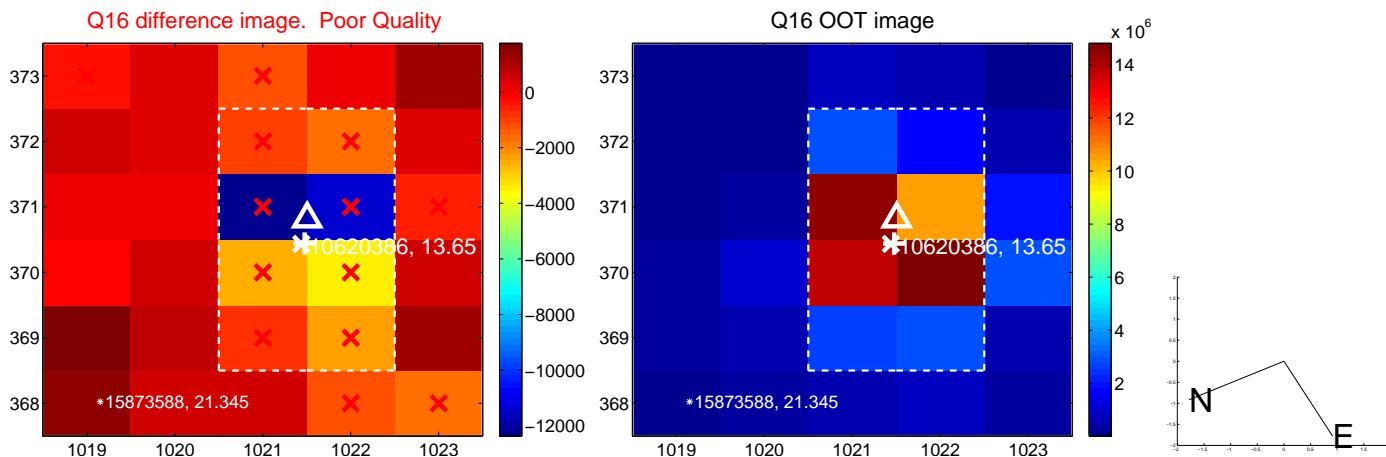
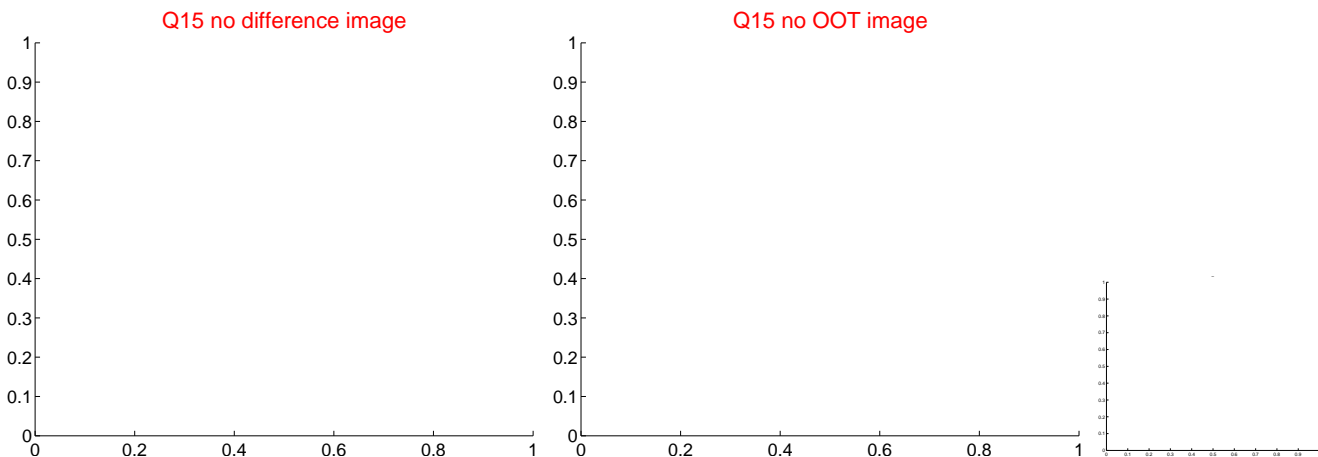
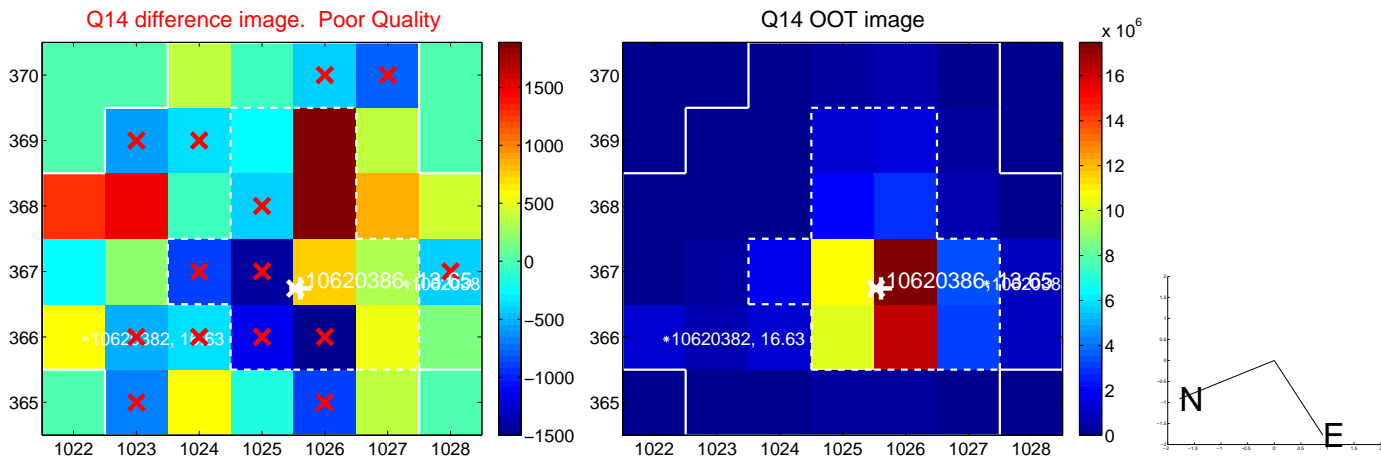
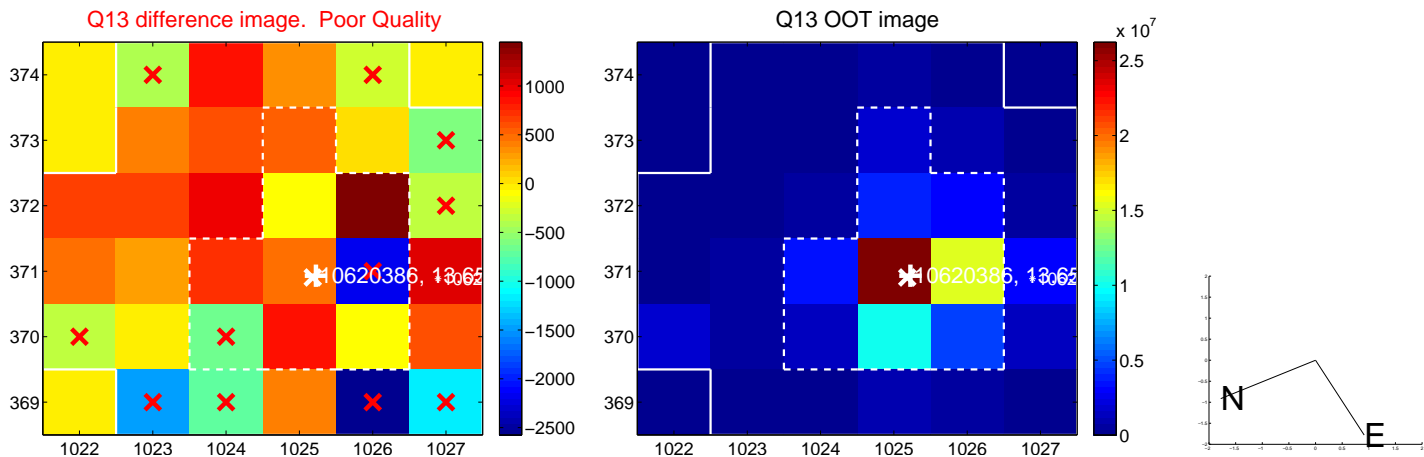
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



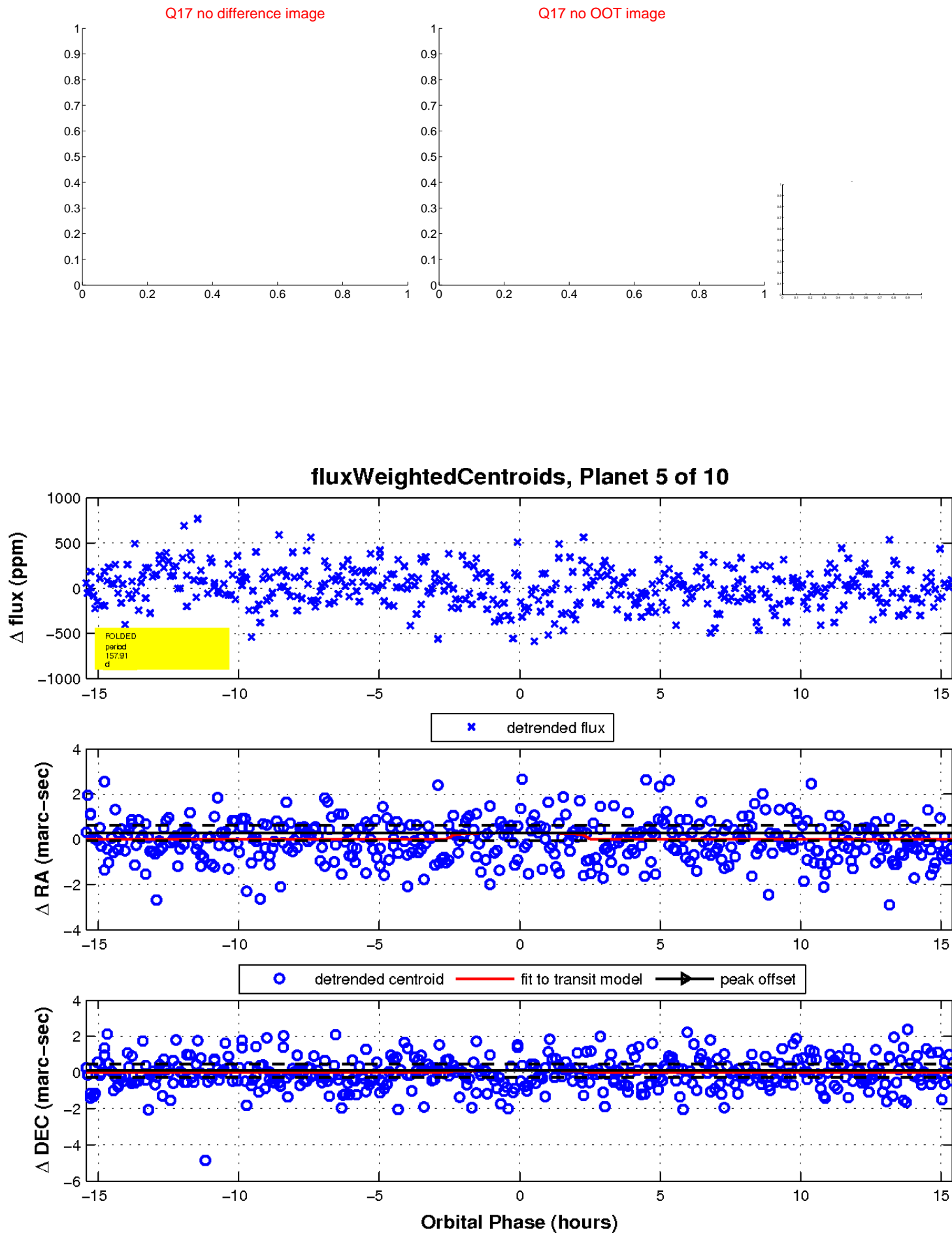
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

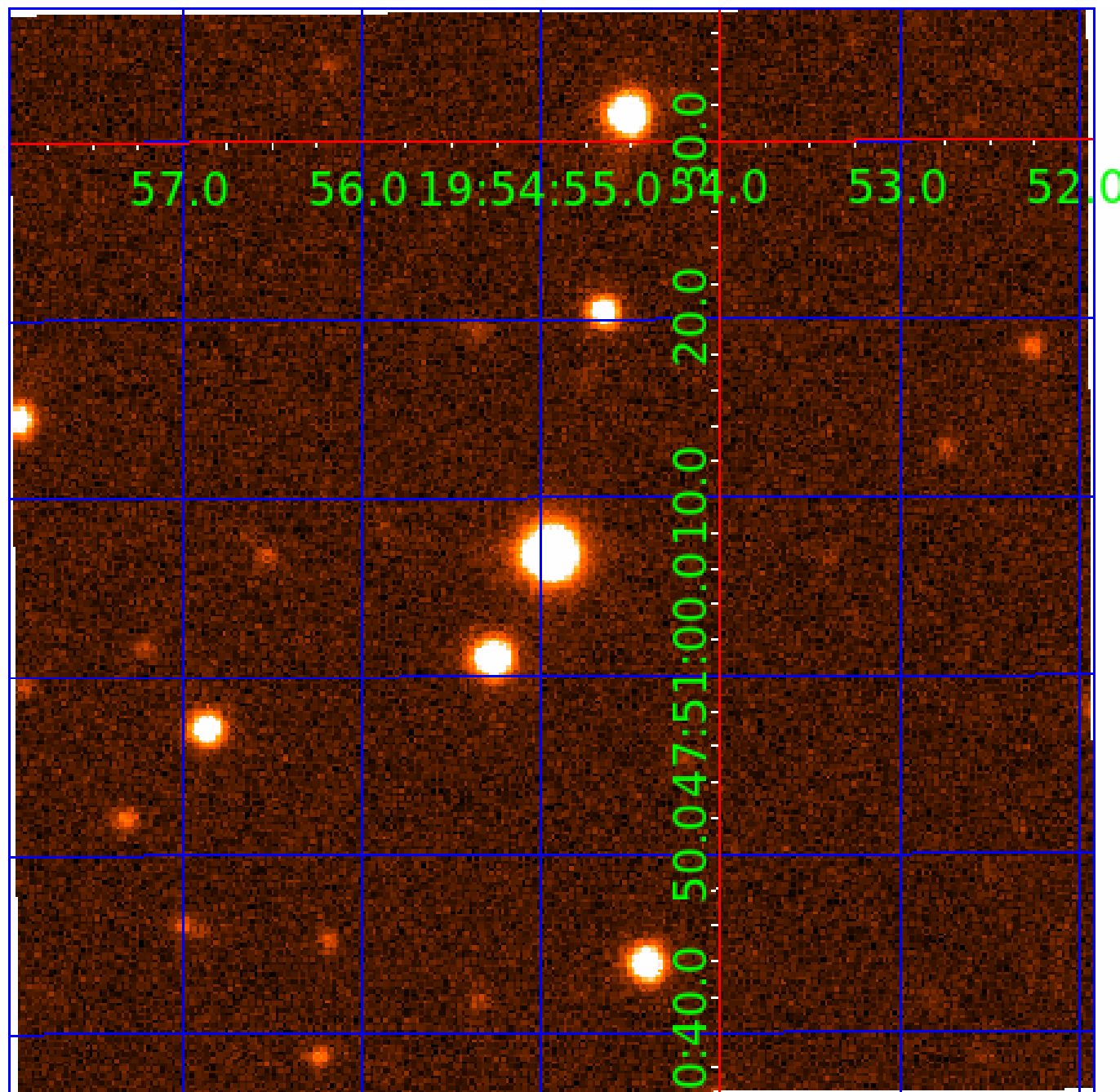


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010620386

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})
010620386-01	OBS	No	1.767922	132.121428	5.8	12.225	7.9	2.4	1.48	6760	0.38	4364.78
010620386-02	OBS	No	44.080619	166.027943	343.6	2.145	12.5	11.5	1.48	6760	2.95	59.92
010620386-03	OBS	No	48.202635	163.525750	465.8	2.026	11.2	9.4	1.48	6760	3.40	53.19
010620386-04	OBS	No	22.111977	133.011494	313.4	2.066	11.3	10.7	1.48	6760	2.94	150.34
010620386-05	OBS	No	157.912847	247.435004	263.1	5.144	9.8	9.7	1.48	6760	2.71	10.93
010620386-06	OBS	No	282.834750	152.515978	274.3	3.433	8.8	9.1	1.48	6760	2.72	5.03
010620386-07	OBS	No	18.357959	145.864348	253.8	2.290	10.9	10.9	1.48	6760	2.41	192.67
010620386-08	OBS	No	16.002501	147.312204	275.0	2.385	9.2	8.6	1.48	6760	2.77	231.38
010620386-09	OBS	No	35.872668	147.147565	262.3	3.732	8.5	8.7	1.48	6760	2.65	78.87
010620386-10	OBS	No	23.456372	140.582661	266.4	2.684	8.4	7.5	1.48	6760	2.82	138.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010620386-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010620386-09	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
010620386-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

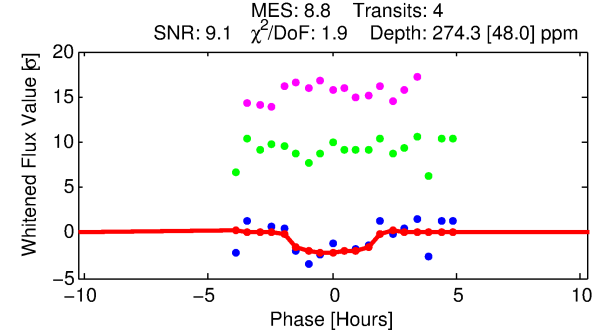
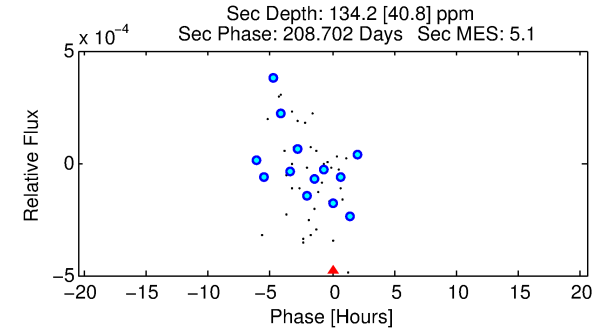
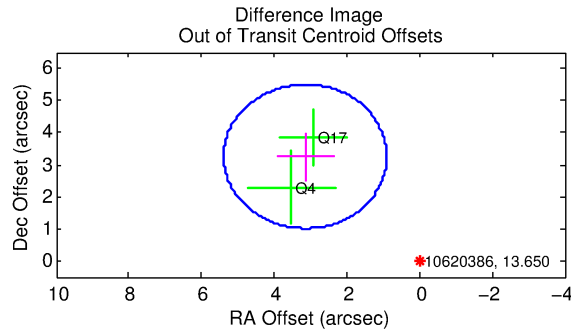
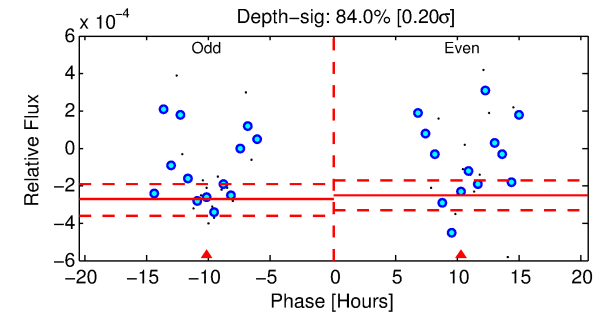
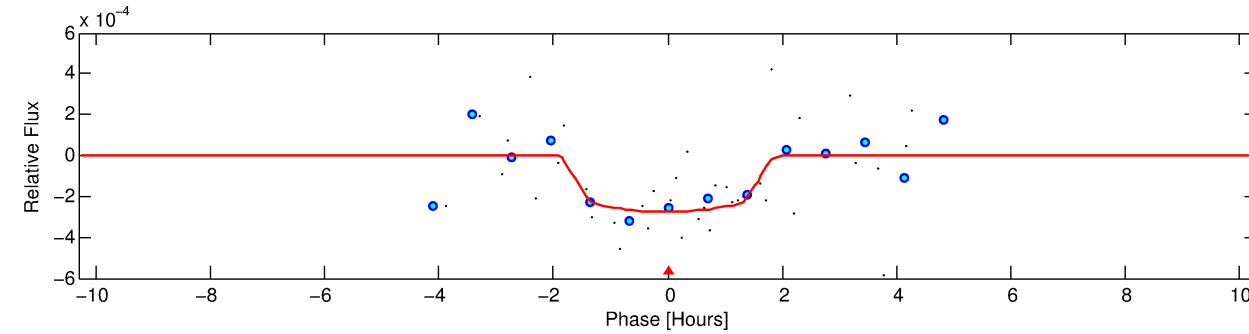
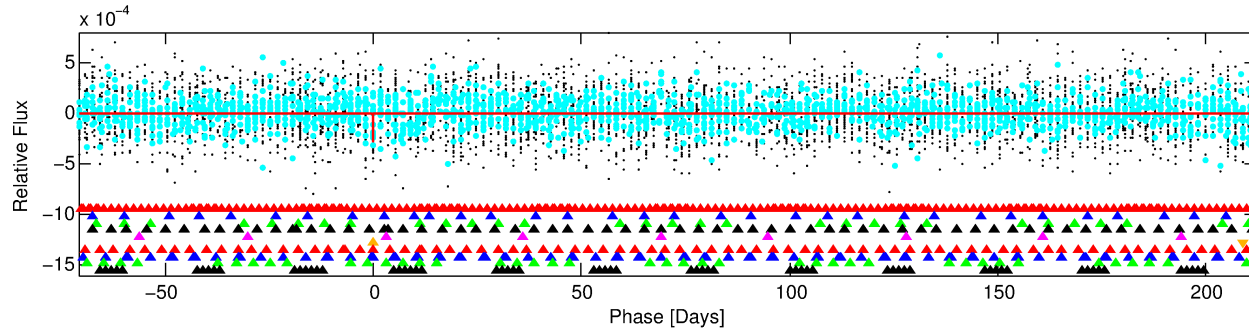
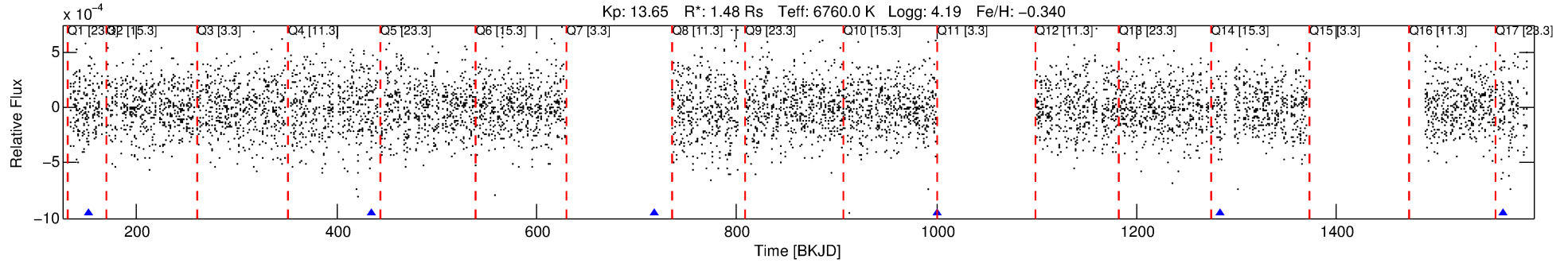
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010620386-06

No Significant Match Found

DV One-Page Summary

KIC: 10620386 Candidate: 6 of 10 Period: 282.835 d



DV Fit Results:

Period = 282.83475 [0.00671] d
Epoch = 152.5160 [0.0148] BKJD
Rp/R* = 0.0168 [0.0212]
a/R* = 383.51 [2826.84]
b = 0.81 [3.10]
Seff = 5.03 [1.78]
Teq = 382 [34] K
Rp = 2.72 [3.51] Re
a = 0.9042 [0.2063] AU
Ag = 8131.55 [20787.19] [0.39 σ]
Teffp = 5605 [3559] K [1.47 σ]

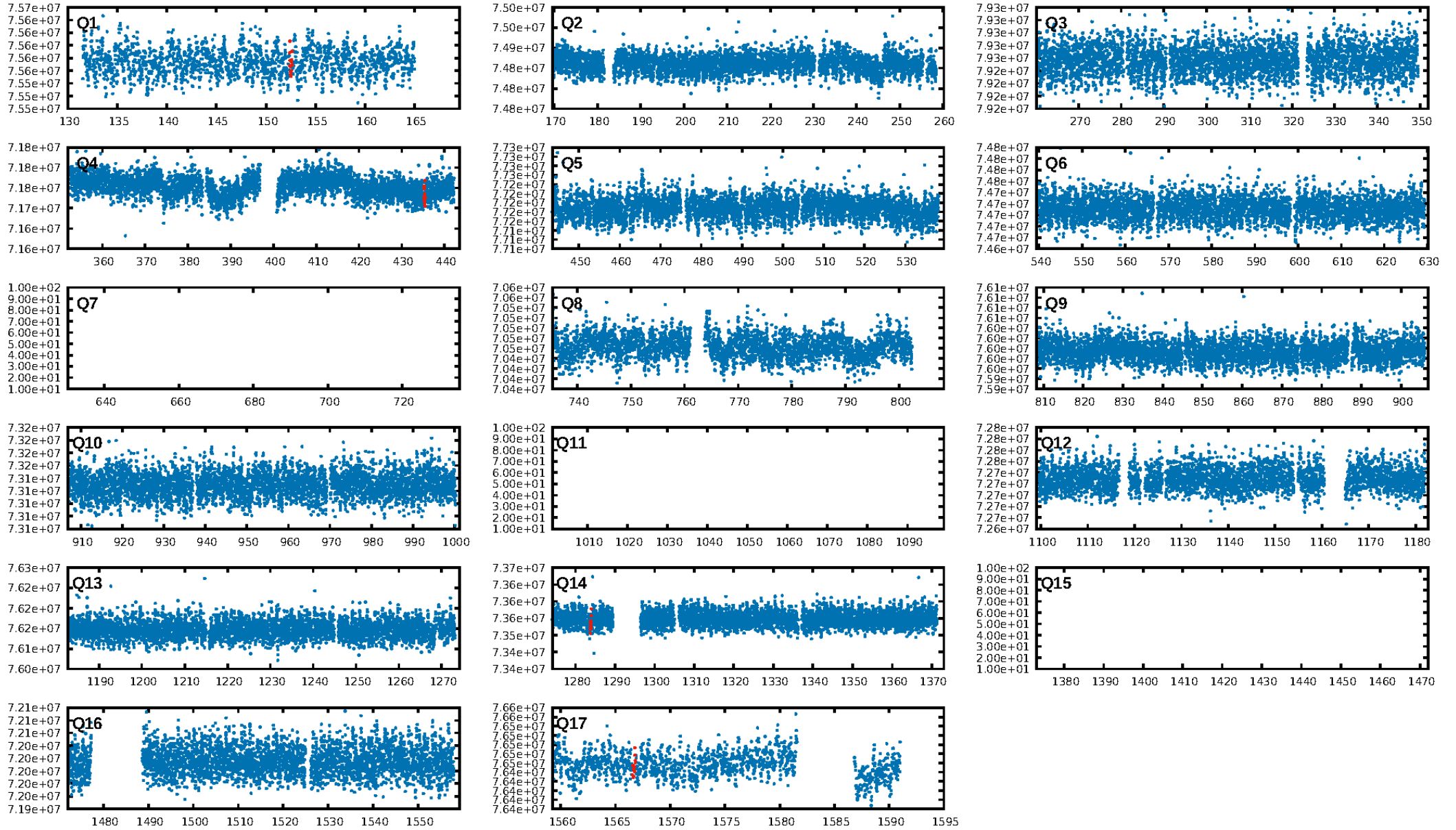
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [484.74 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 54.3%
ModelChiSquareGof-sig: 98.0%
Bootstrap-pfa: 4.68e-08
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 6.636
Centroid-sig: 56.7%
Centroid-so: 2.013 arcsec [0.99 σ]
OotOffset-rm: 4.529 arcsec [6.06 σ]
KicOffset-rm: 4.308 arcsec [5.75 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.50 [2/4]

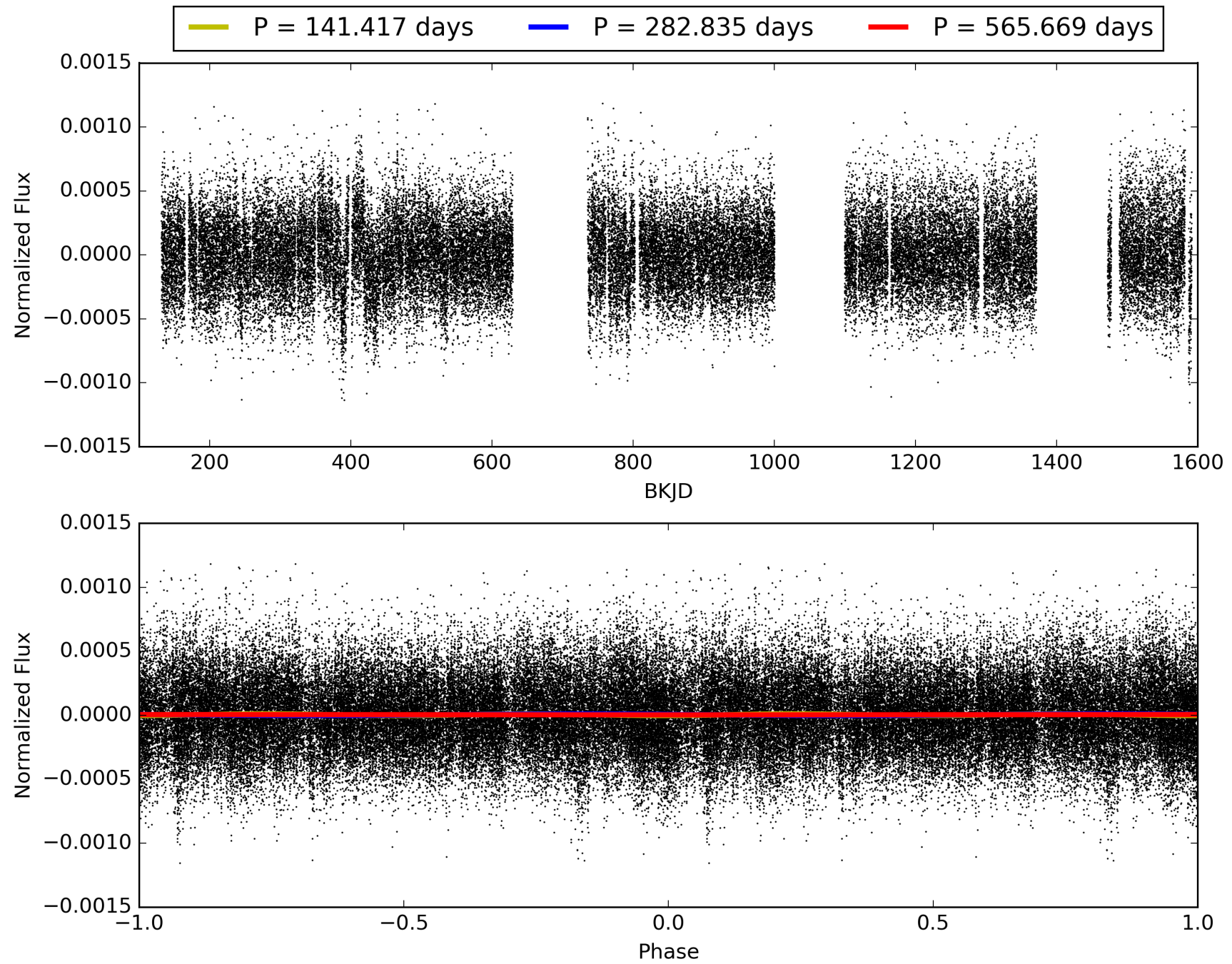
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:20:02 Z

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

TCE 010620386-06, PDC Light Curves

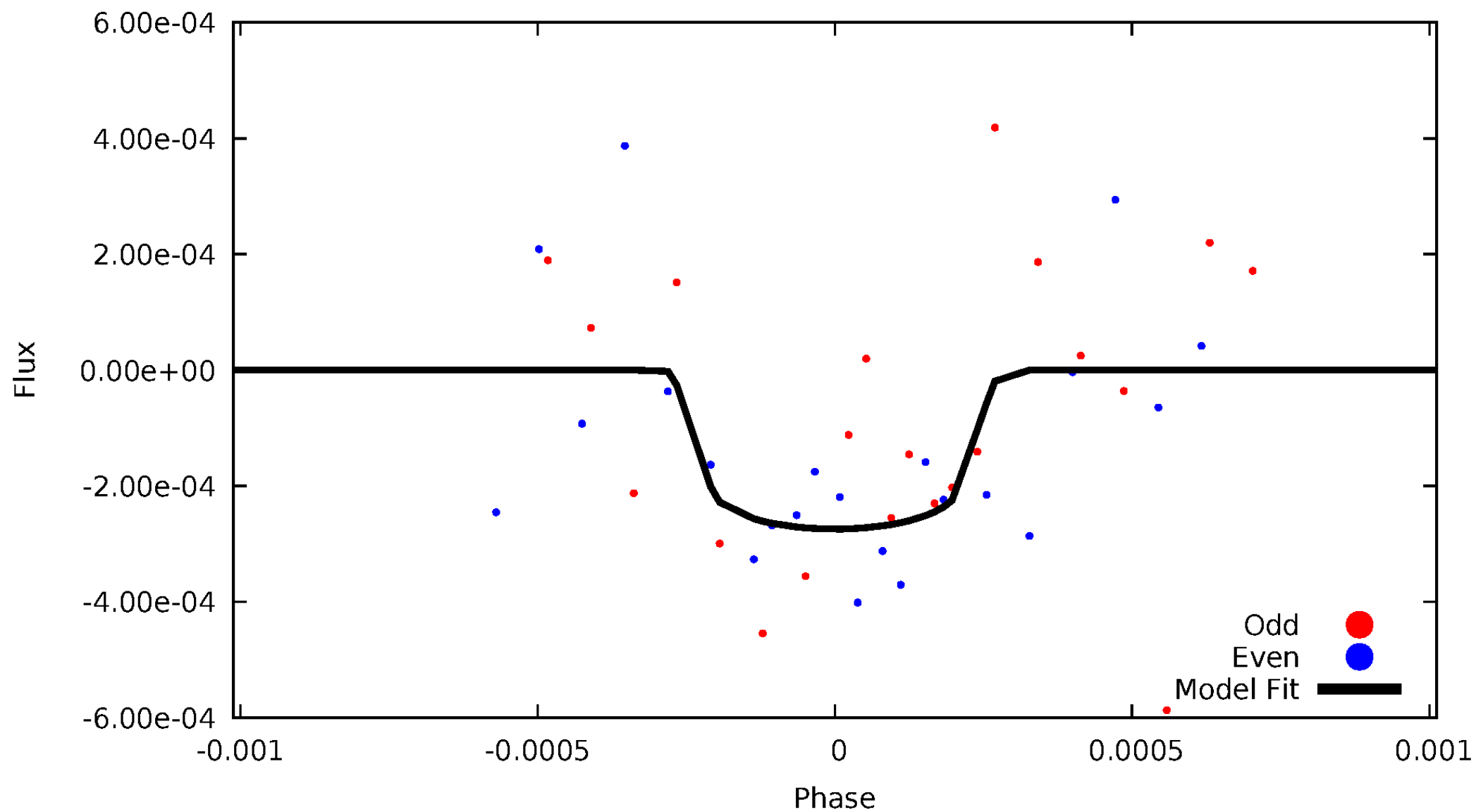


TCE 010620386-06



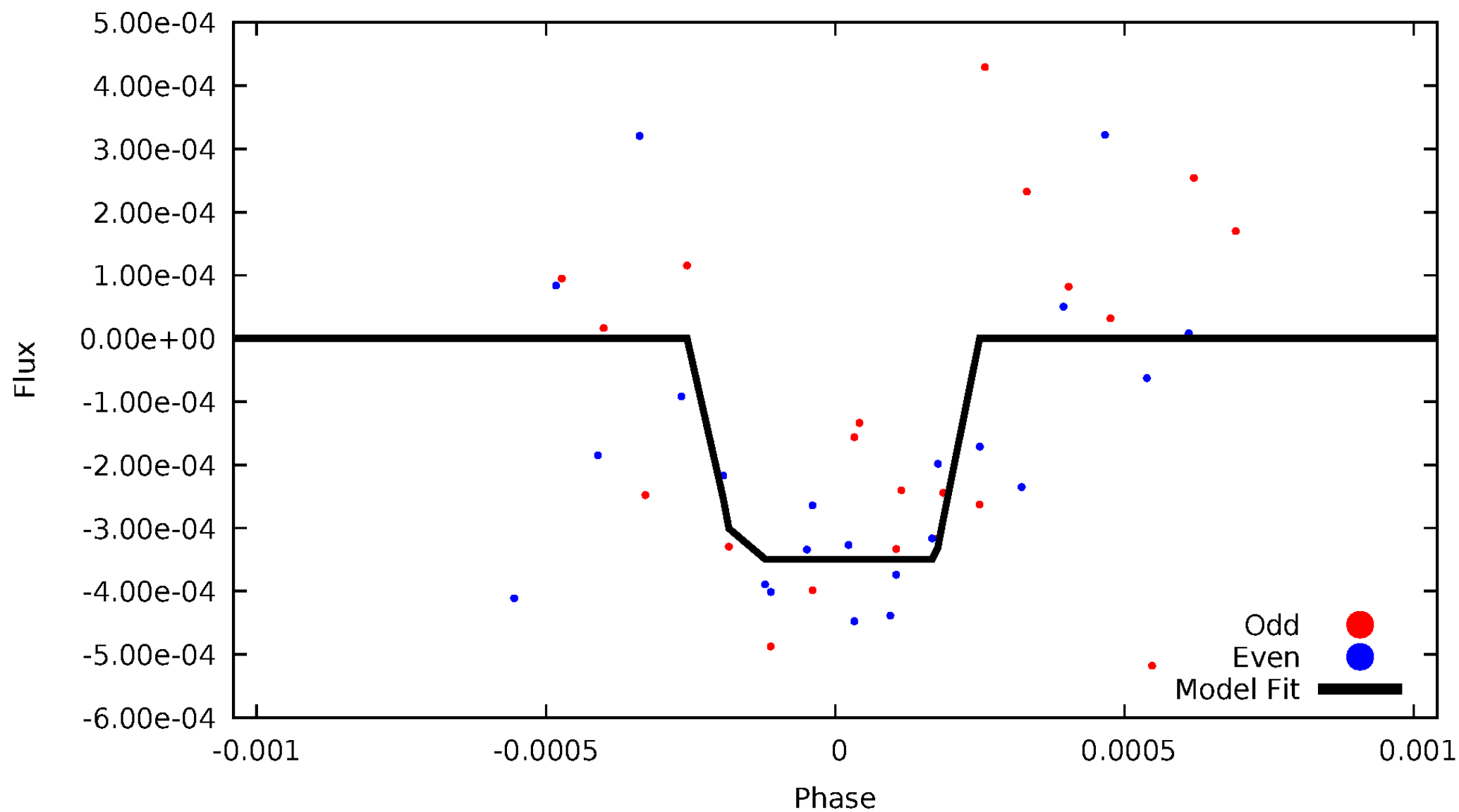
DV Odd/Even

TCE 010620386-06



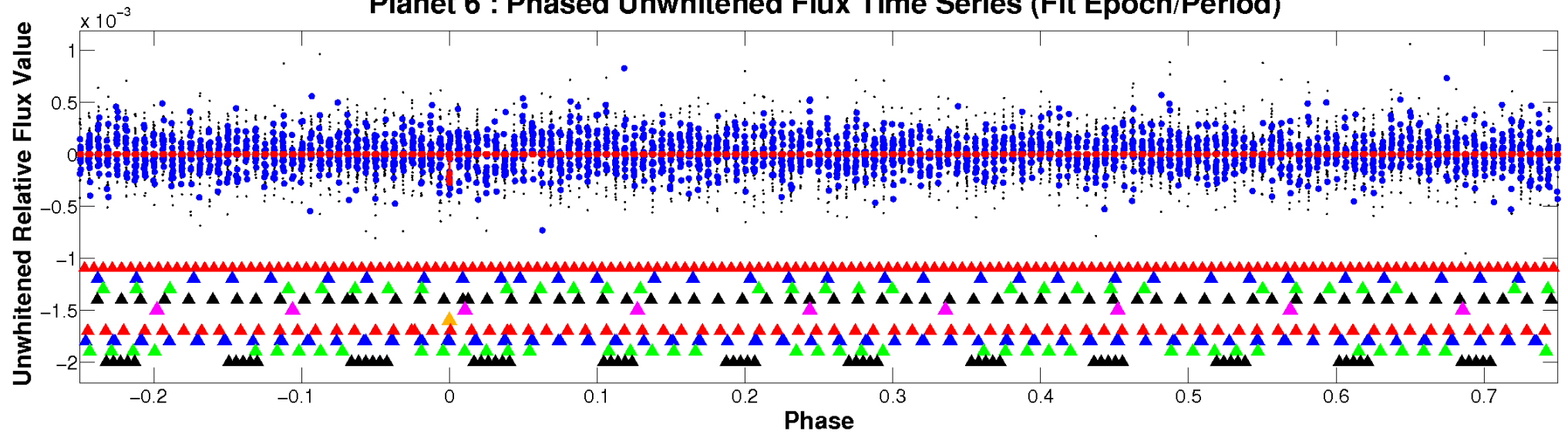
ALT Odd/Even

TCE 010620386-06

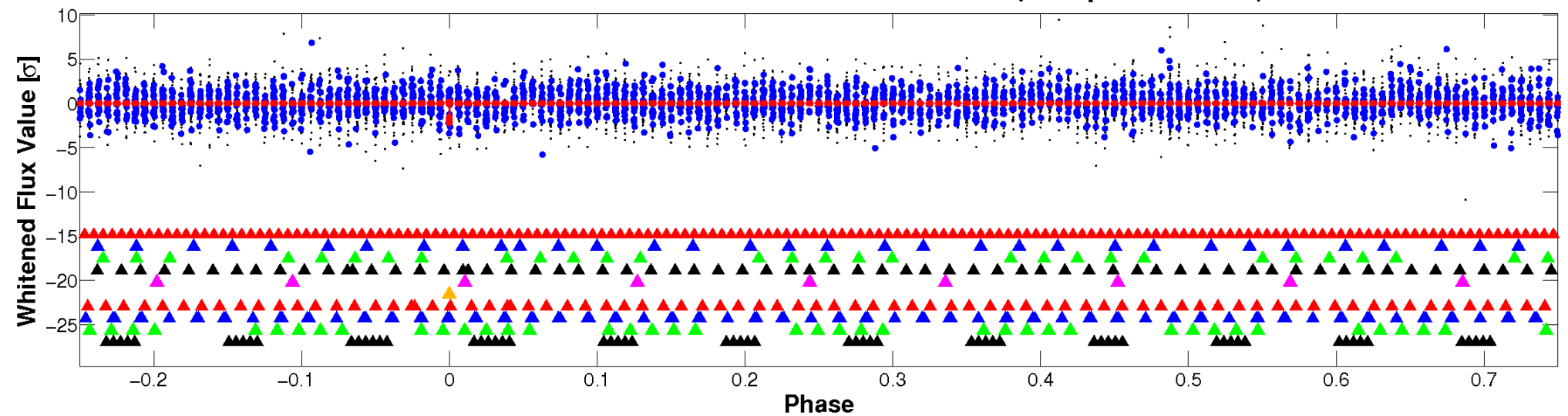


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

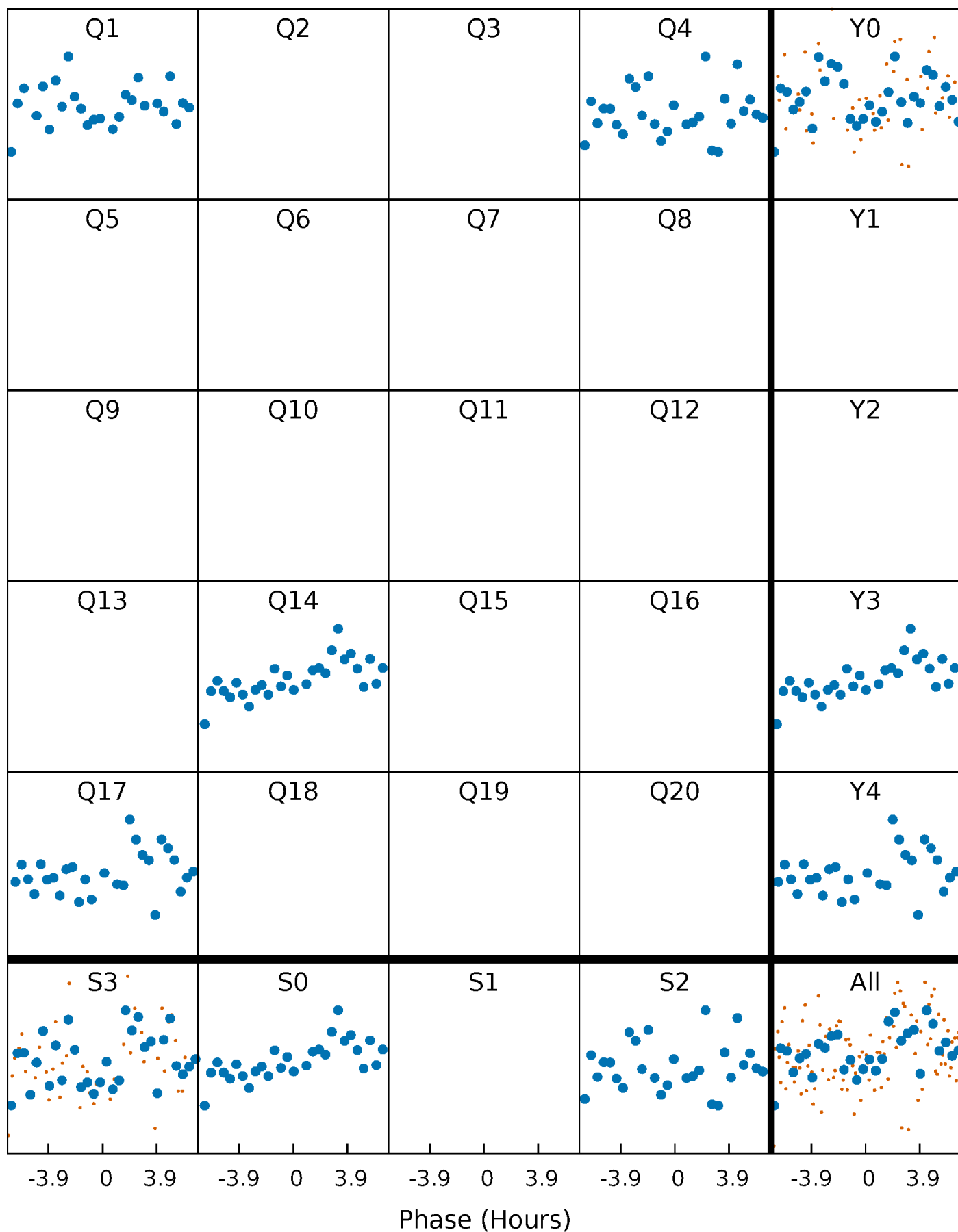


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



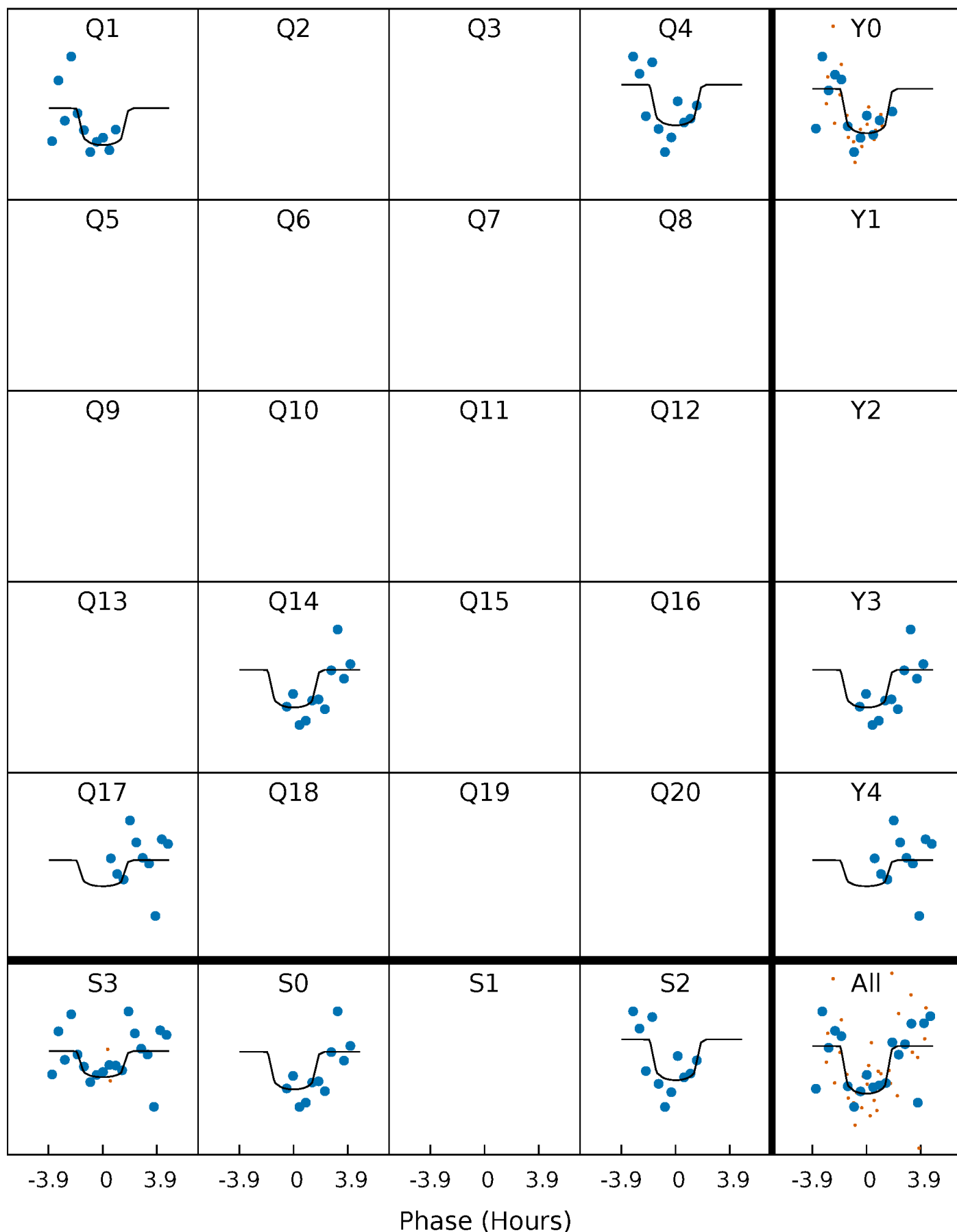
PDC Quarter-Phased Transit Curves

TCE 010620386-06 $P=282.834750$ Days $T_0=152.515978$ (BKJD)



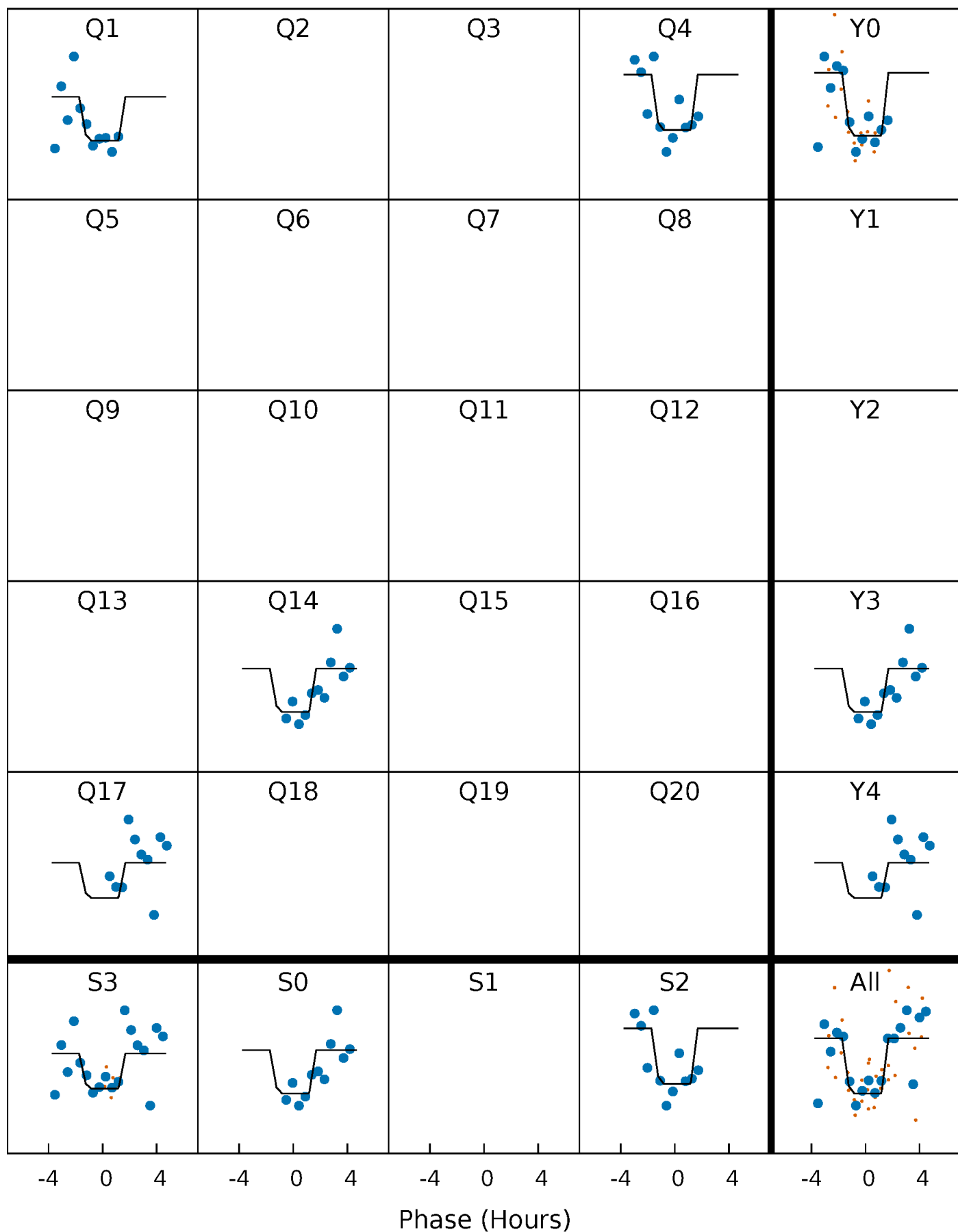
DV Quarter-Phased Transit Curves

TCE 010620386-06 $P=282.834750$ Days $T_0=152.515978$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

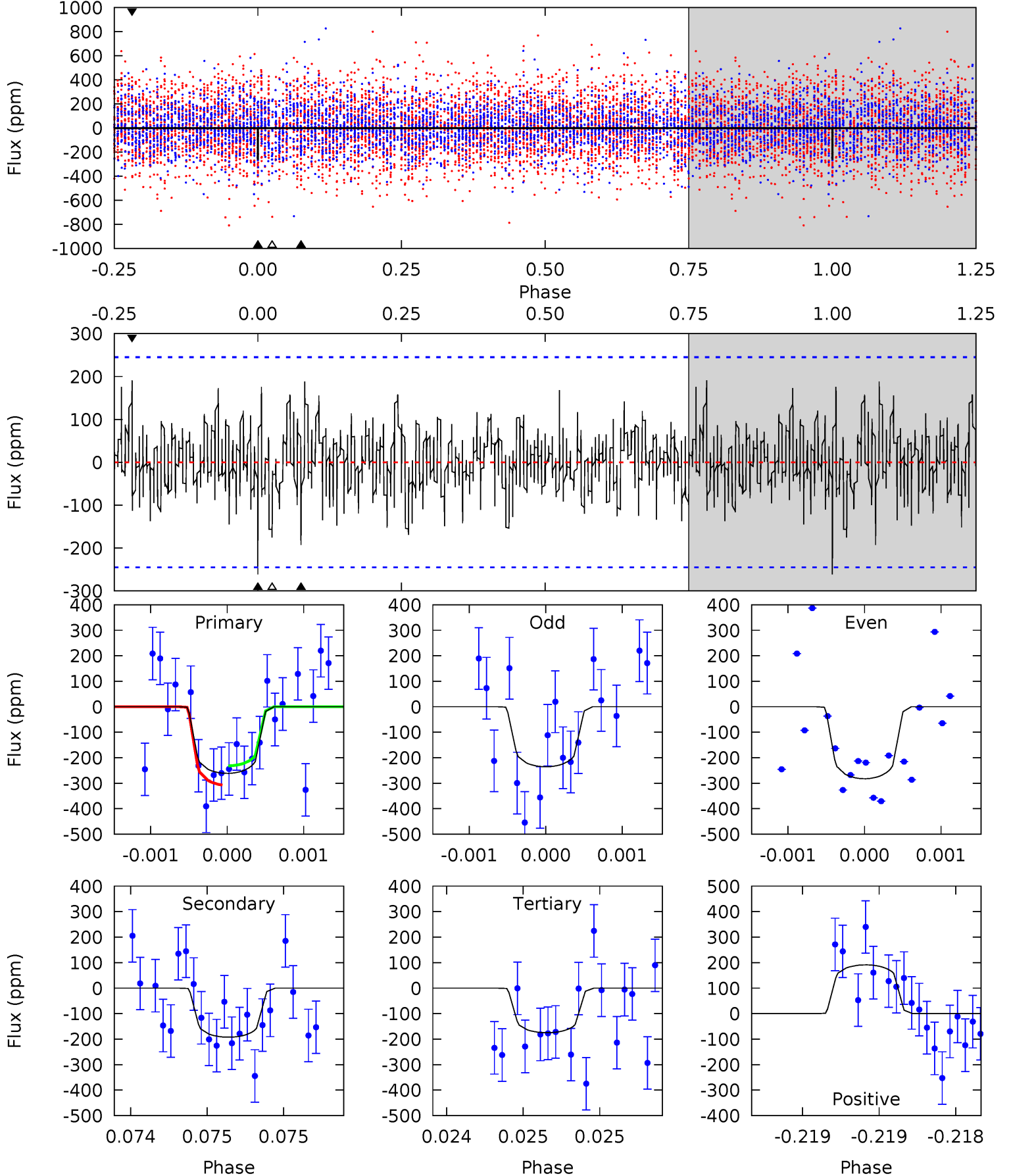
TCE 010620386-06 P=282.836194 Days $T_0=152.511711$ (BKJD)



DV Model-Shift Uniqueness Test

010620386-06, P = 282.834750 Days, E = 152.515978 Days

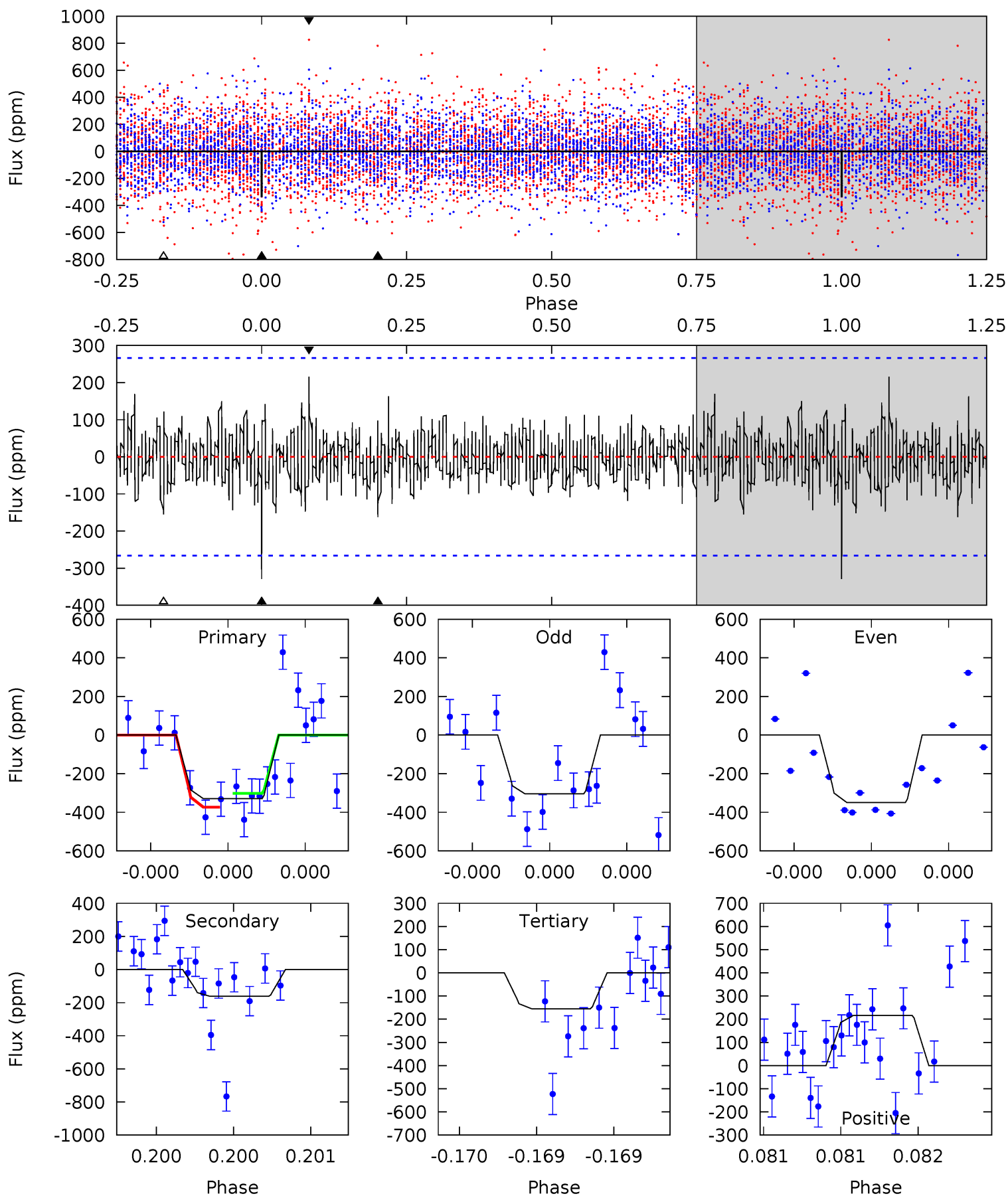
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.93	4.36	3.97	4.34	5.56	3.46	1.31	1.96	1.59	0.40	0.03	0.53	0.87	0.42	0.82



Alt Model-Shift Uniqueness Test

010620386-06, P = 282.836194 Days, E = 152.511711 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.95	3.42	3.27	4.56	5.62	3.55	1.05	3.68	2.39	0.15	-1.14	0.48	0.91	0.40	0.74



Stellar Parameters For KIC 010620386

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6760^{+189}_{-236}	$4.187^{+0.158}_{-0.175}$	$-0.340^{+0.250}_{-0.300}$	$1.482^{+0.410}_{-0.336}$	$1.237^{+0.170}_{-0.208}$	$0.536^{+0.500}_{-0.263}$
	+3%/-3%	+4%/-4%	+74%/-88%	+28%/-23%	+14%/-17%	+93%/-49%
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 010620386-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-192 ± 44	$3.55^{+3.23}_{-2.30}$	534^{+38}_{-36}	5398^{+4518}_{-1232}	6759^{+49065}_{-4927}
Alt.	-162 ± 47	$3.76^{+3.23}_{-2.37}$	534^{+39}_{-35}	5017^{+3383}_{-1080}	4791^{+30802}_{-3388}

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 $A_{obs} \gg 1.0$

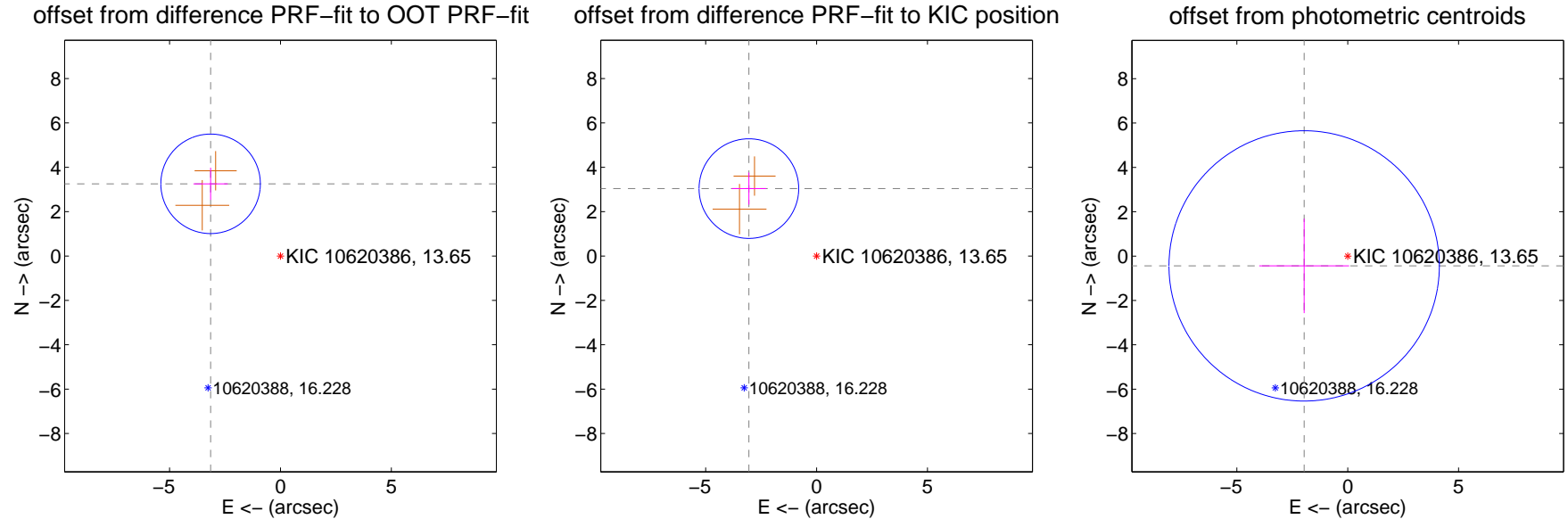
DV Centroid Data

Supplemental centroid analysis for 010620386-06. Kepler magnitude: 13.65. Transit SNR 9.12

There are 0 quarters with good PRF difference image offsets

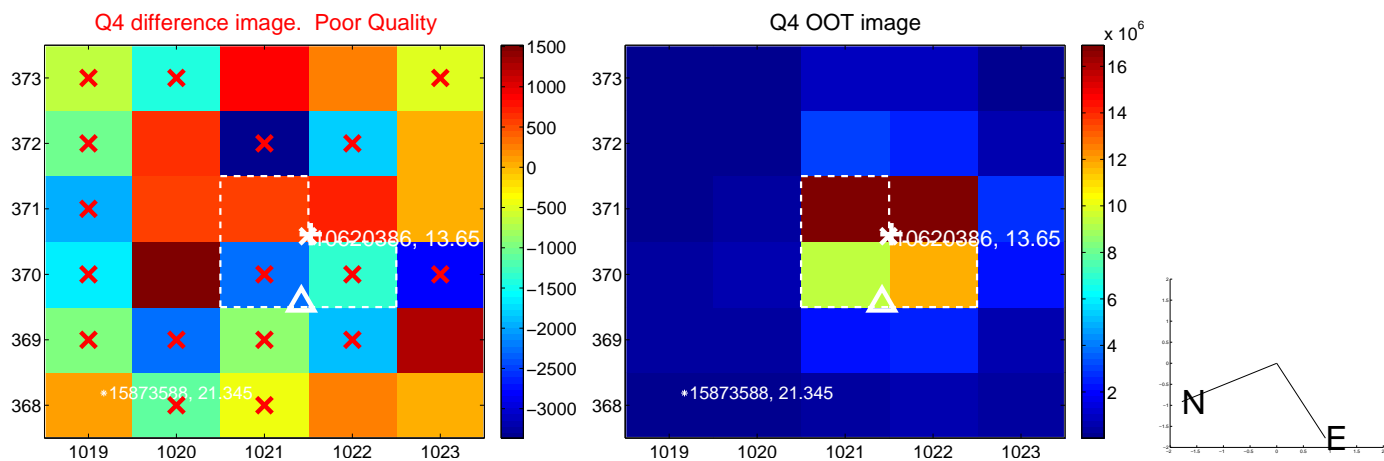
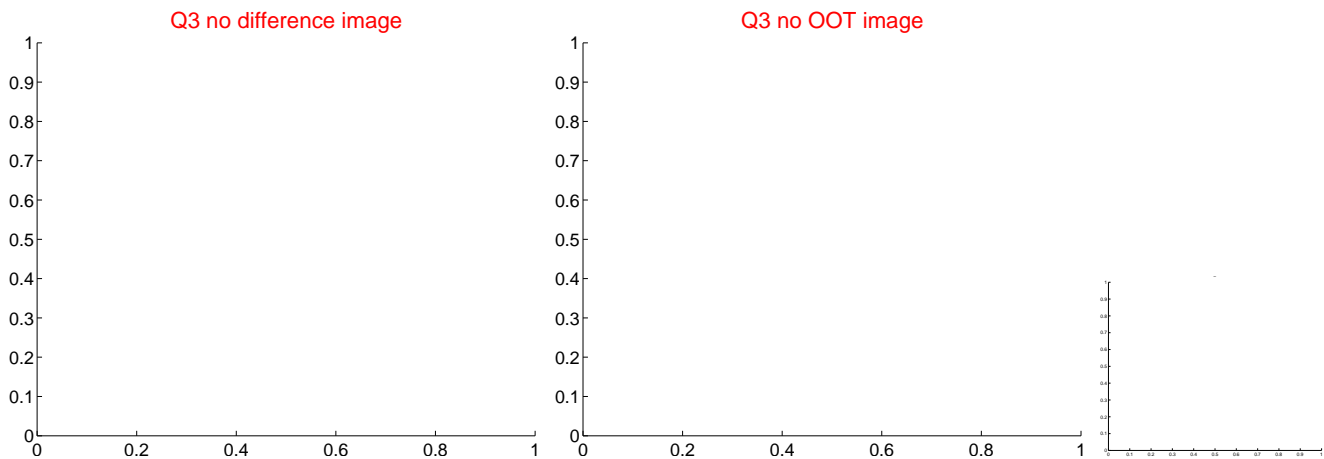
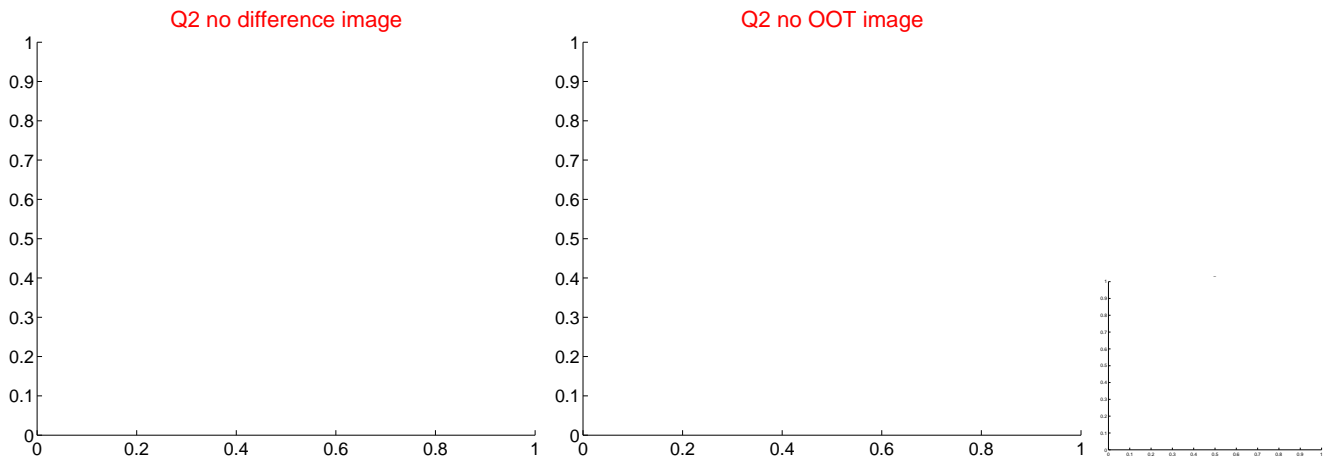
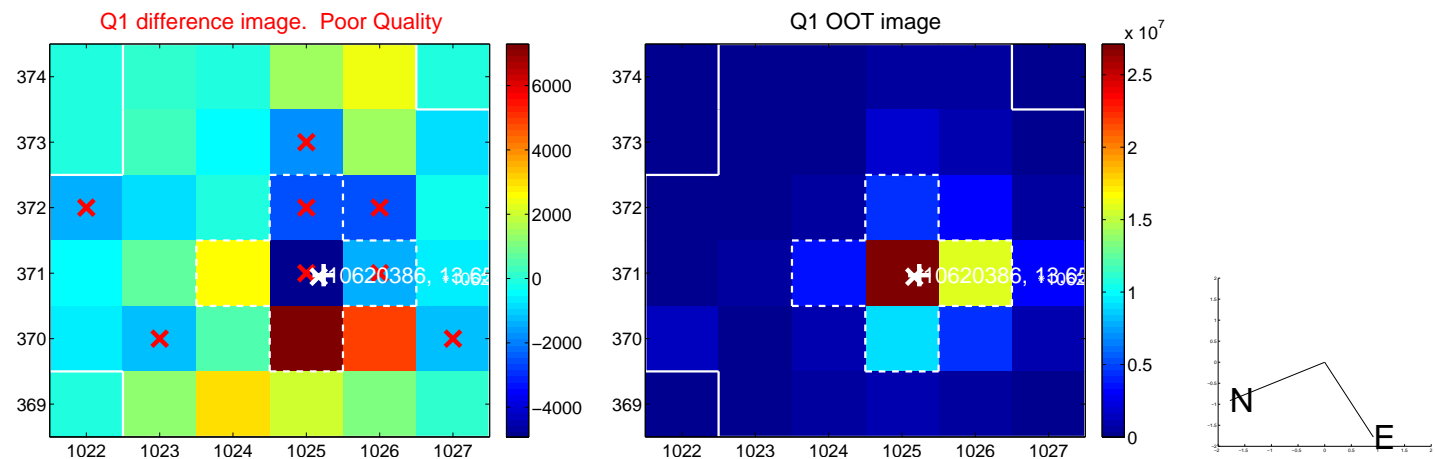
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.529 \pm 0.748	6.06	3.149 \pm 0.772	3.255 \pm 0.724
PRF-fit source offset from KIC position	4.308 \pm 0.749	5.75	3.052 \pm 0.772	3.040 \pm 0.724
photometric centroid source offset	2.01 \pm 2.03	0.99	1.96 \pm 2.03	-0.44 \pm 2.13

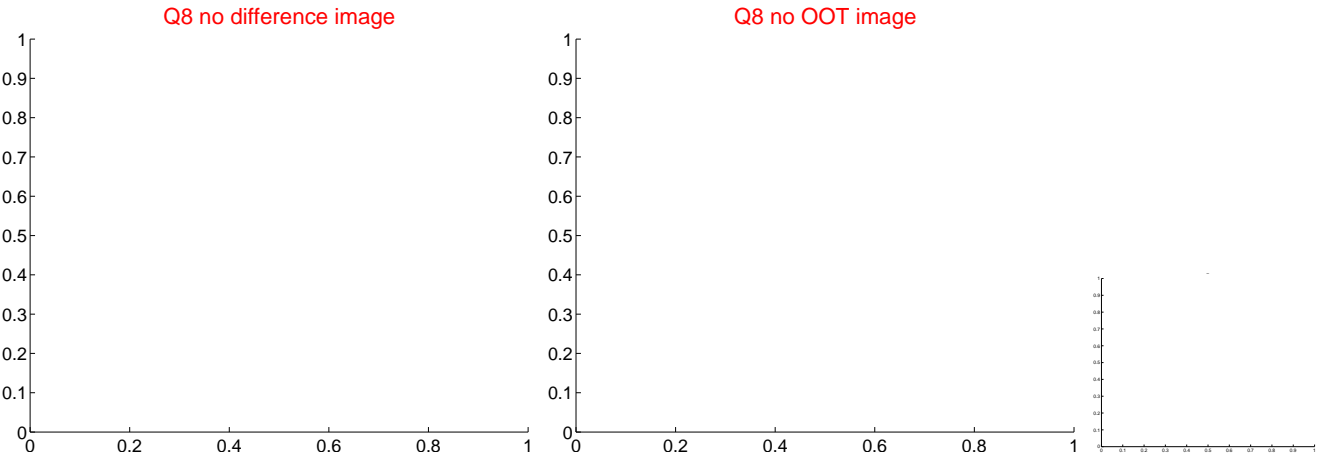
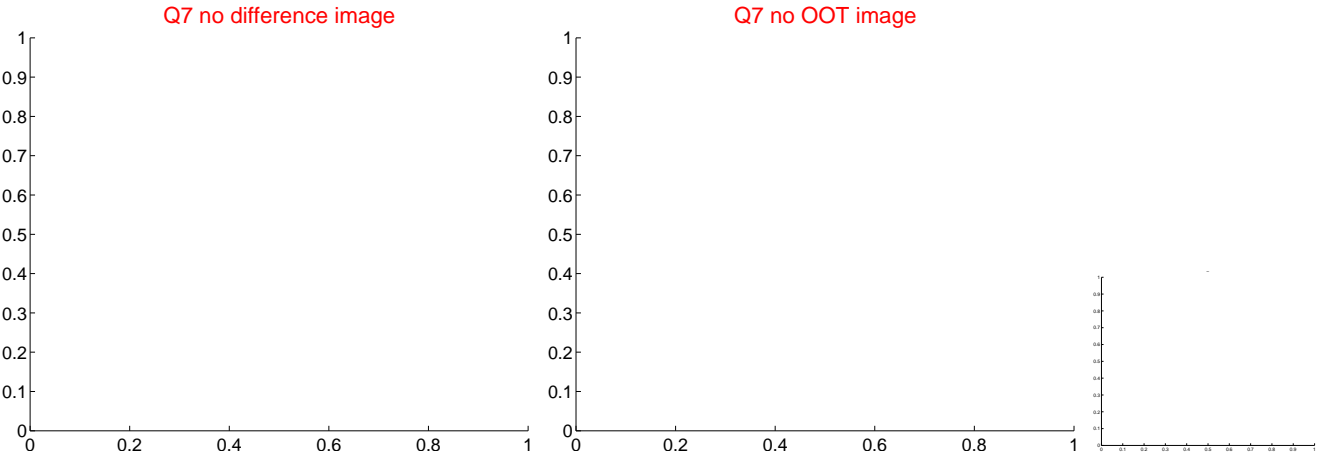
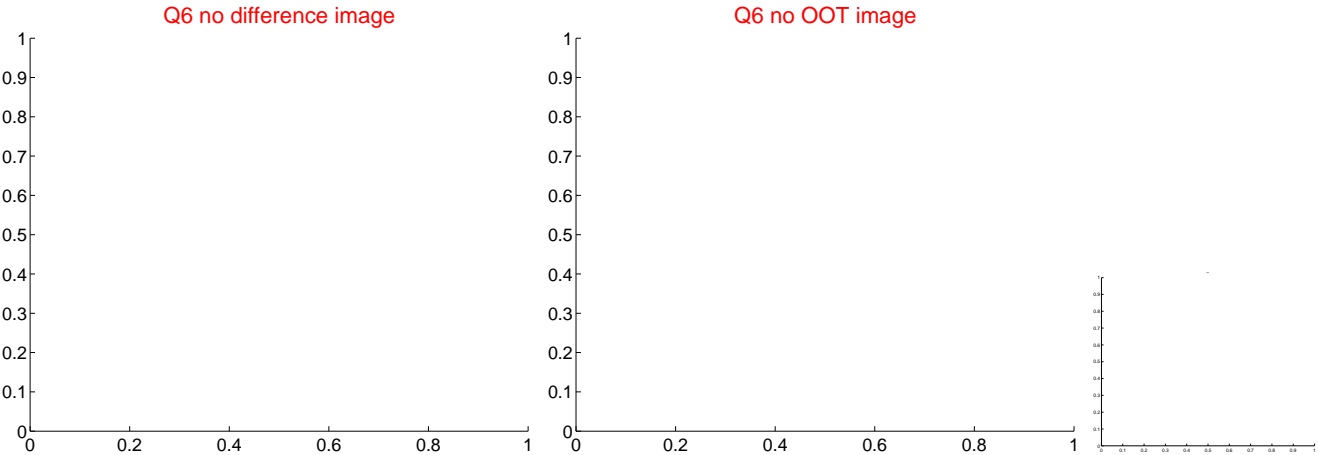
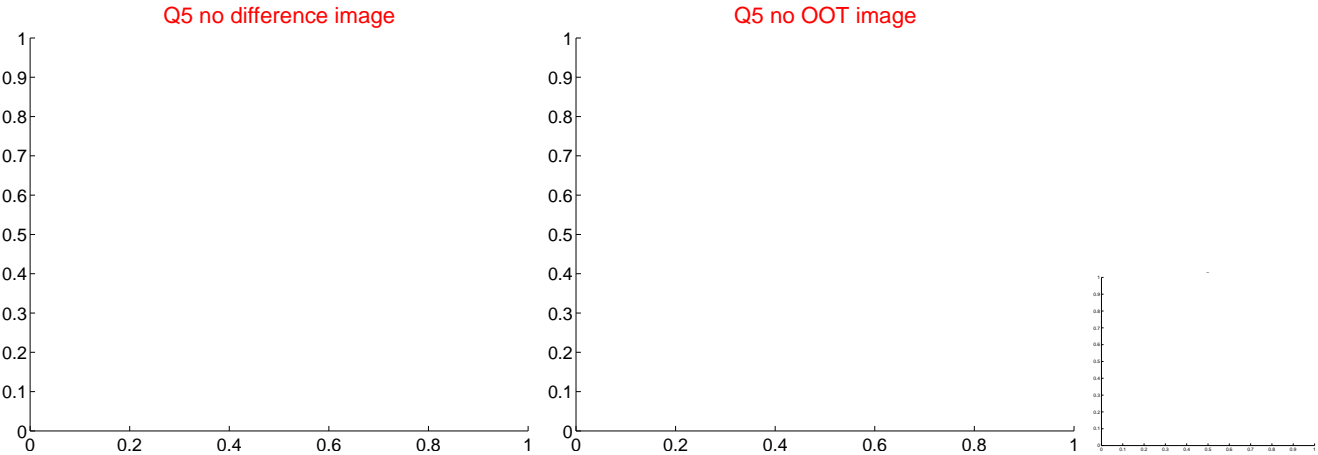


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



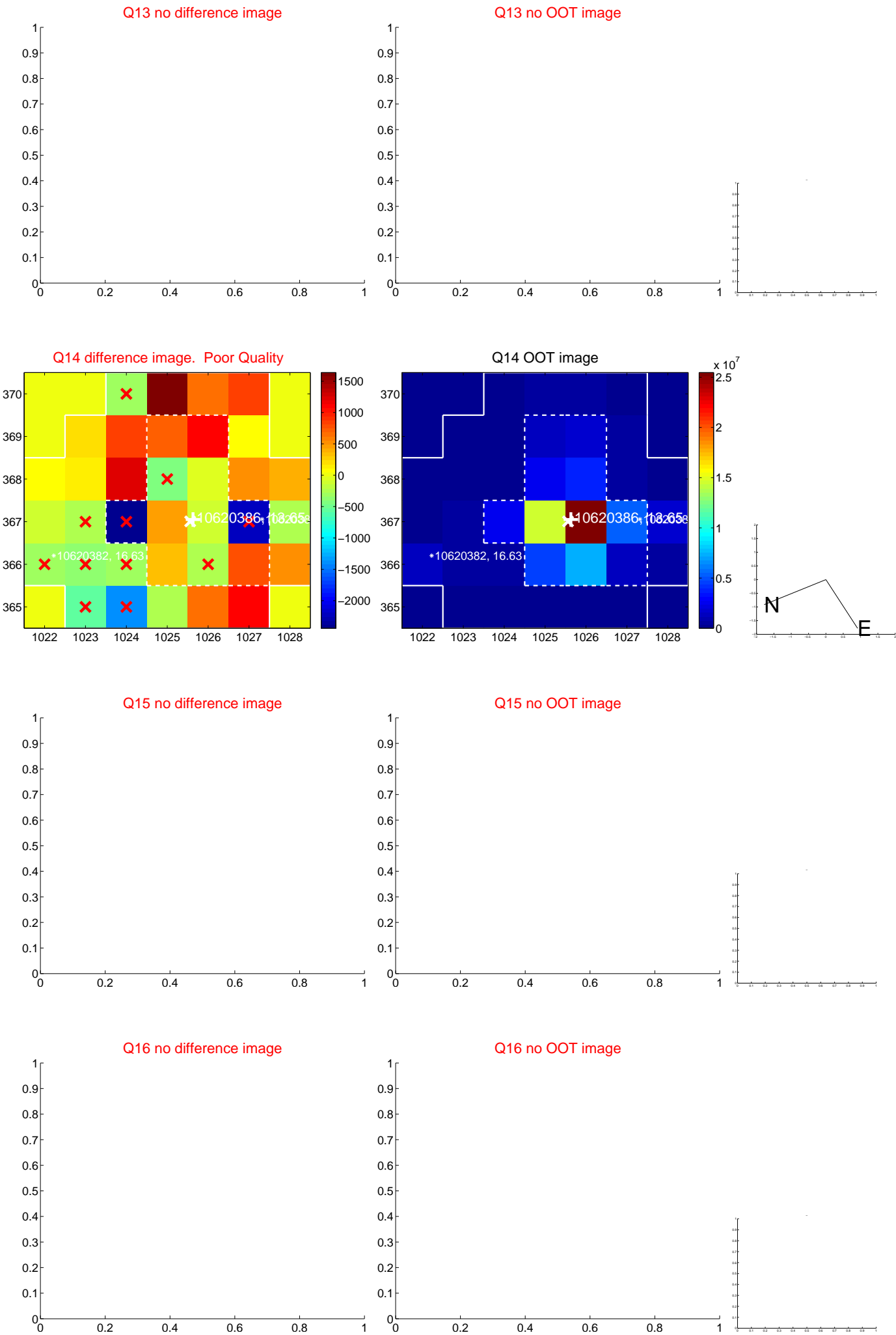
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



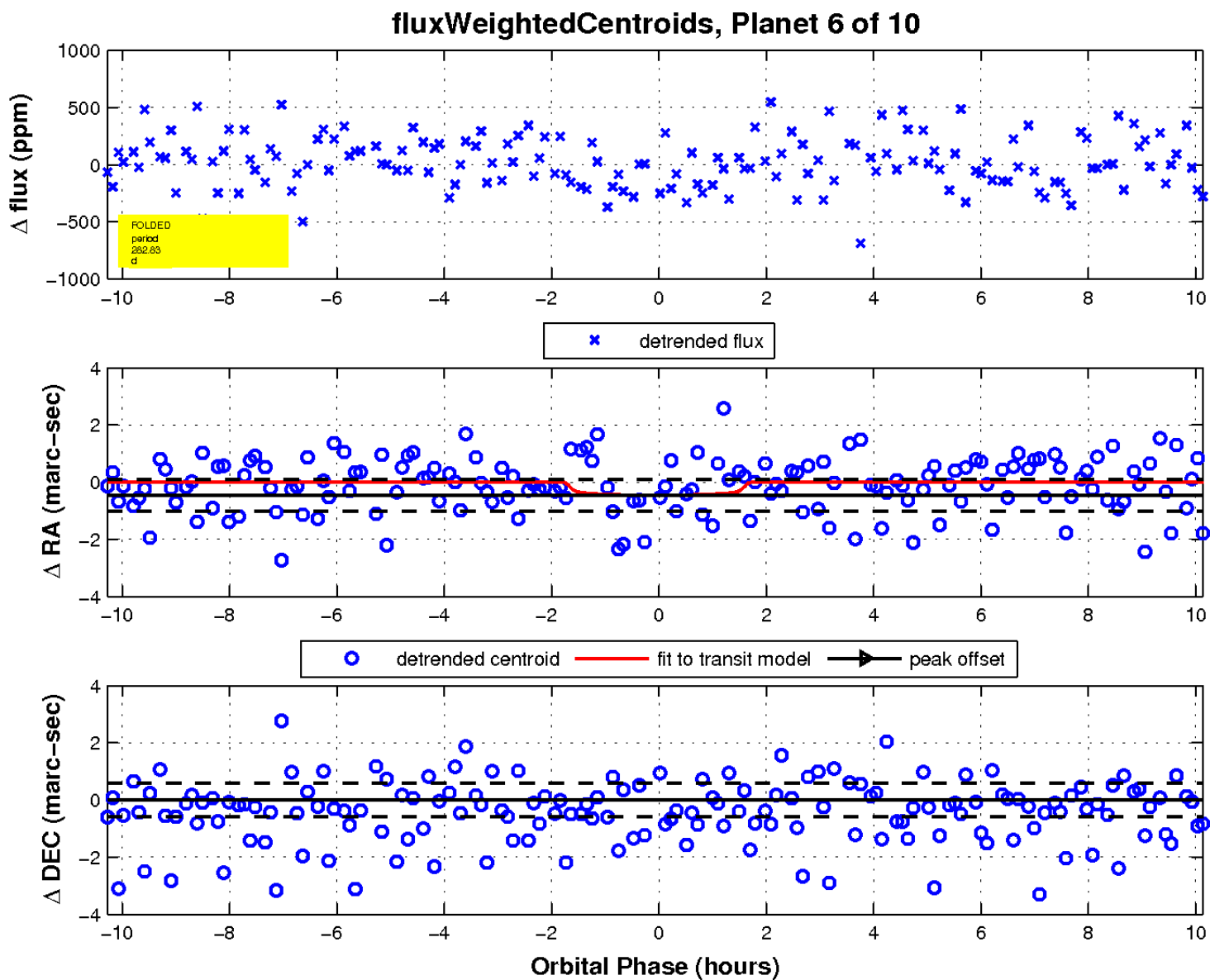
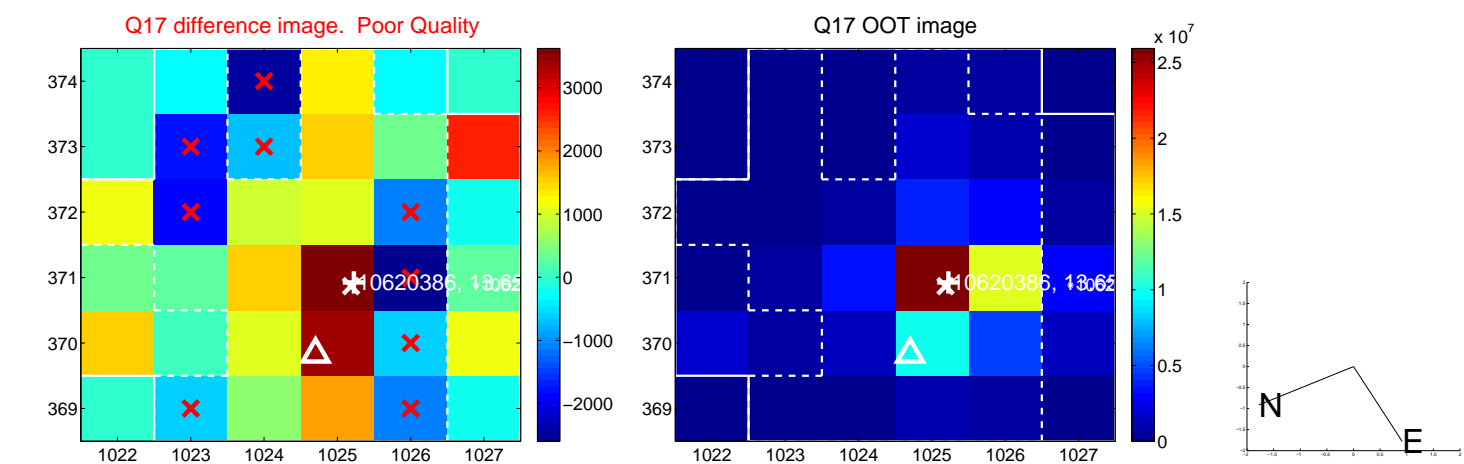
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

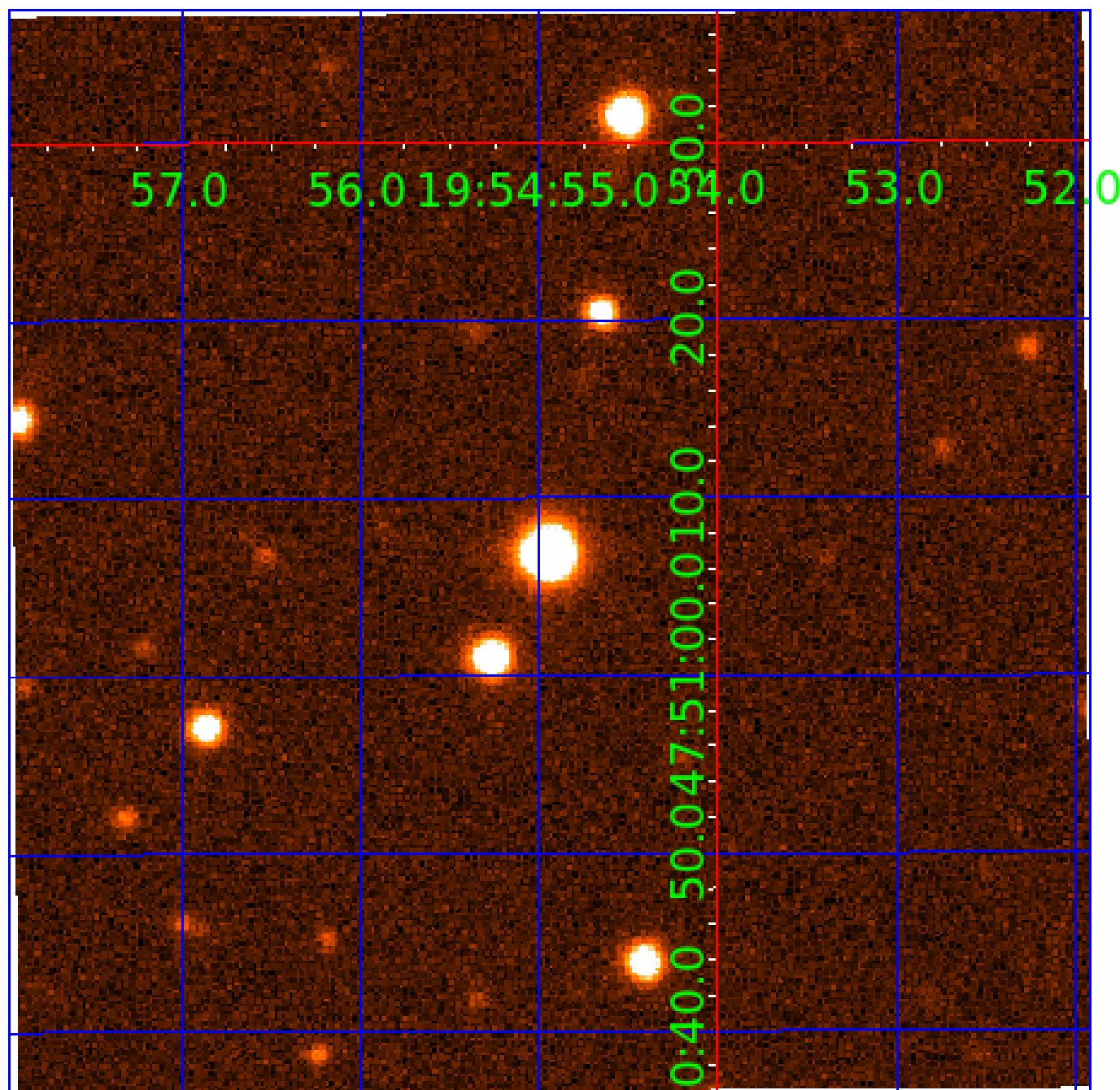


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010620386

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})
010620386-01	OBS	No	1.767922	132.121428	5.8	12.225	7.9	2.4	1.48	6760	0.38	4364.78
010620386-02	OBS	No	44.080619	166.027943	343.6	2.145	12.5	11.5	1.48	6760	2.95	59.92
010620386-03	OBS	No	48.202635	163.525750	465.8	2.026	11.2	9.4	1.48	6760	3.40	53.19
010620386-04	OBS	No	22.111977	133.011494	313.4	2.066	11.3	10.7	1.48	6760	2.94	150.34
010620386-05	OBS	No	157.912847	247.435004	263.1	5.144	9.8	9.7	1.48	6760	2.71	10.93
010620386-06	OBS	No	282.834750	152.515978	274.3	3.433	8.8	9.1	1.48	6760	2.72	5.03
010620386-07	OBS	No	18.357959	145.864348	253.8	2.290	10.9	10.9	1.48	6760	2.41	192.67
010620386-08	OBS	No	16.002501	147.312204	275.0	2.385	9.2	8.6	1.48	6760	2.77	231.38
010620386-09	OBS	No	35.872668	147.147565	262.3	3.732	8.5	8.7	1.48	6760	2.65	78.87
010620386-10	OBS	No	23.456372	140.582661	266.4	2.684	8.4	7.5	1.48	6760	2.82	138.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010620386-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010620386-09	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
010620386-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

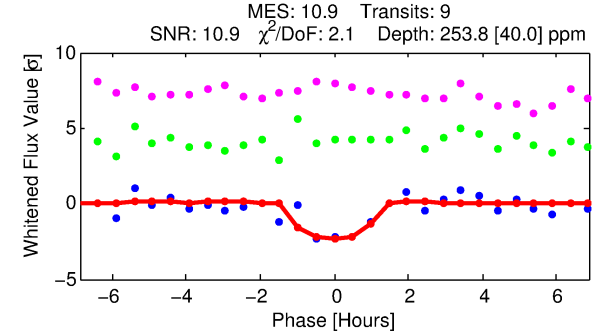
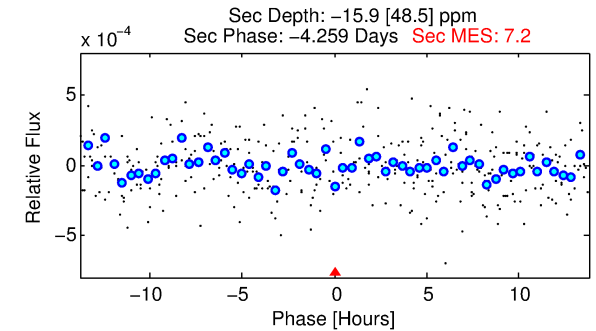
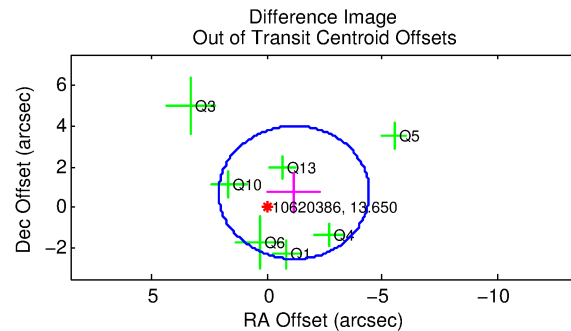
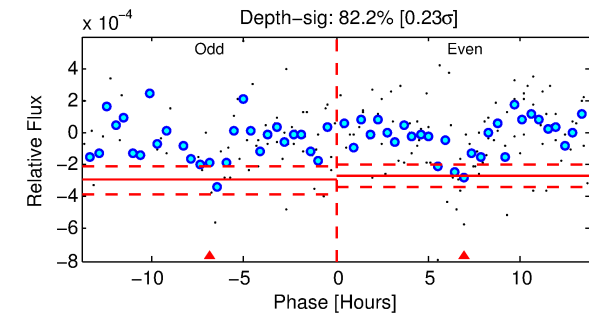
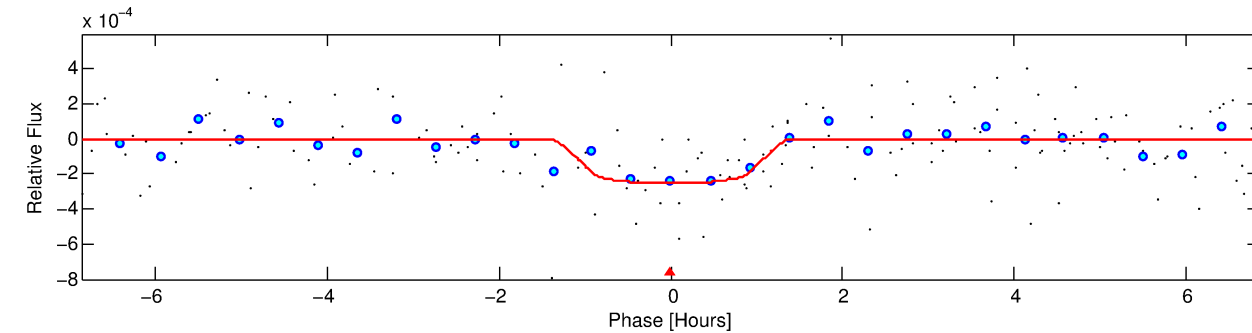
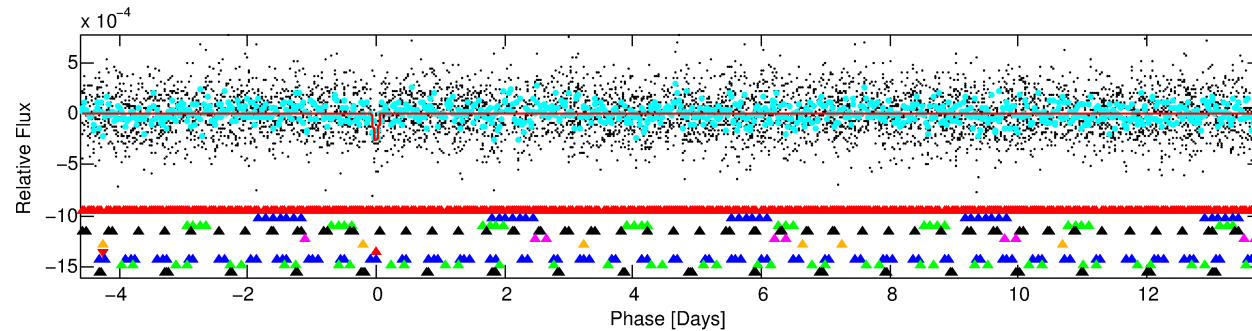
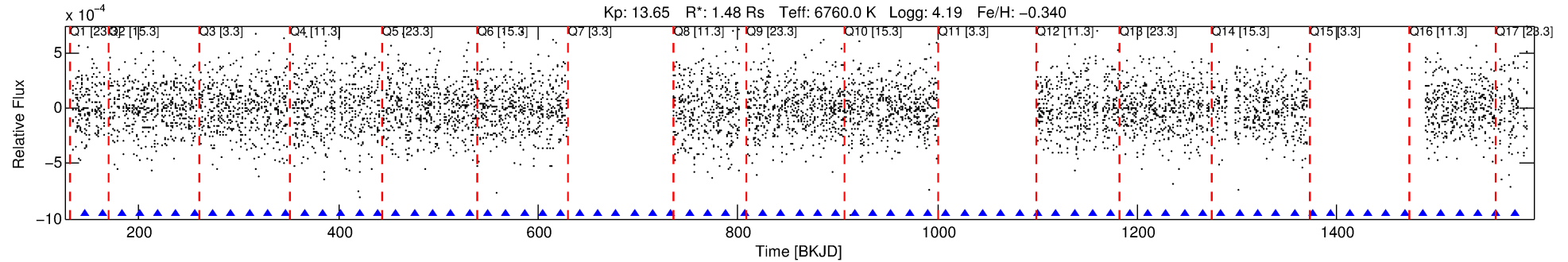
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010620386-07

No Significant Match Found

DV One-Page Summary

KIC: 10620386 Candidate: 7 of 10 Period: 18.358 d



DV Fit Results:

Period = 18.35796 [0.00028] d
Epoch = 145.8643 [0.0121] BKJD
Rp/R* = 0.0149 [0.0220]
a/R* = 58.18 [471.97]
b = 0.36 [19.98]
Seff = 192.67 [68.30]
Teq = 950 [84] K
Rp = 2.41 [3.61] Re
a = 0.1460 [0.0333] AU
Ag = N/A
Teffp = N/A

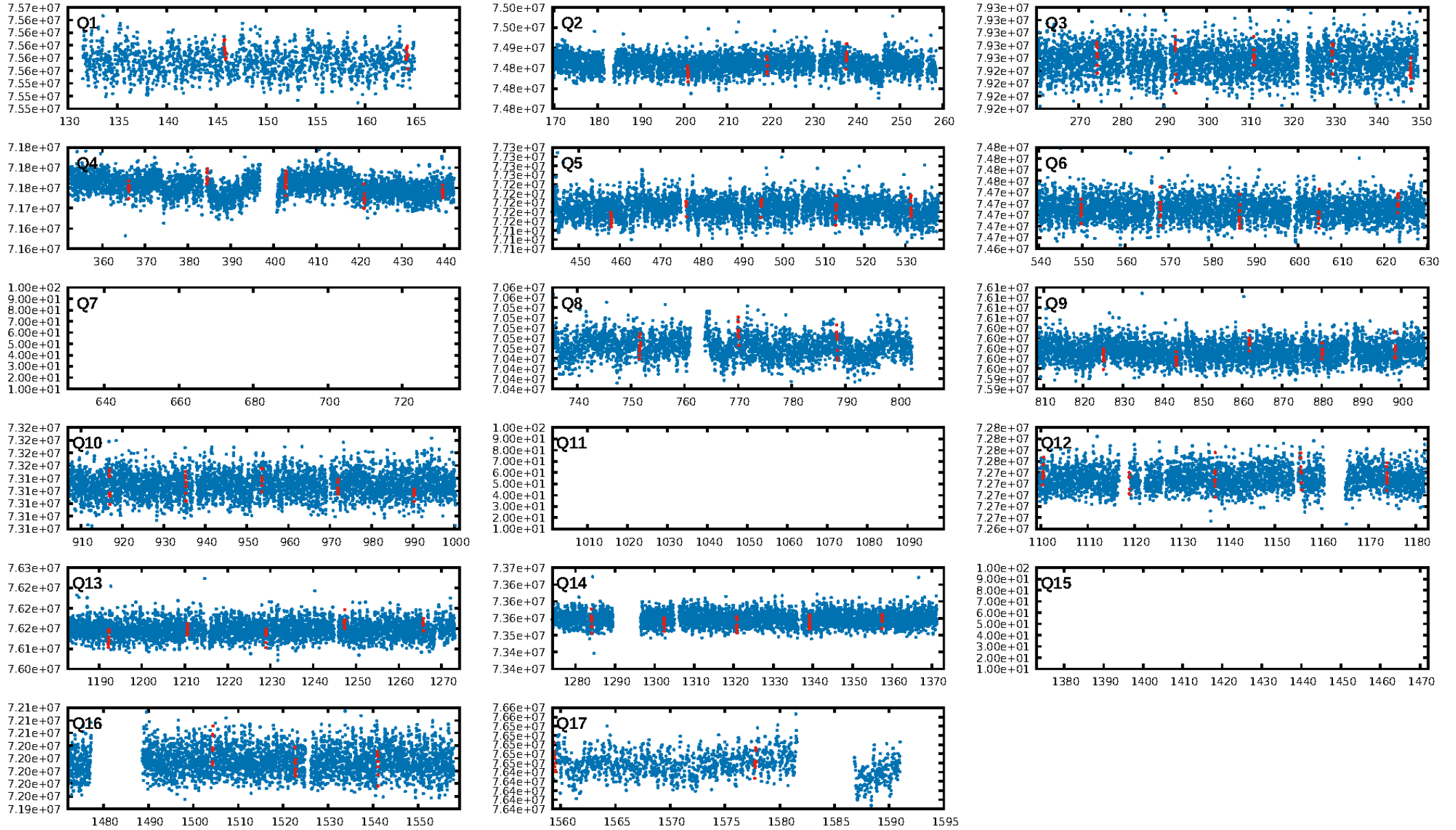
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.10 σ]
LongPeriod-sig: 100.0% [29.21 σ]
ModelChiSquare2-sig: 6.9%
ModelChiSquareGof-sig: 86.2%
Bootstrap-pfa: 6.59e-11
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: -0.7172
Centroid-sig: 19.0%
Centroid-so: 0.936 arcsec [1.43 σ]
OotOffset-rm: 1.381 arcsec [1.27 σ]
KicOffset-rm: 1.254 arcsec [1.13 σ]
OotOffset-st: 2/1/1/3 [7]
KicOffset-st: 2/1/1/3 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 0.86 [12/14]

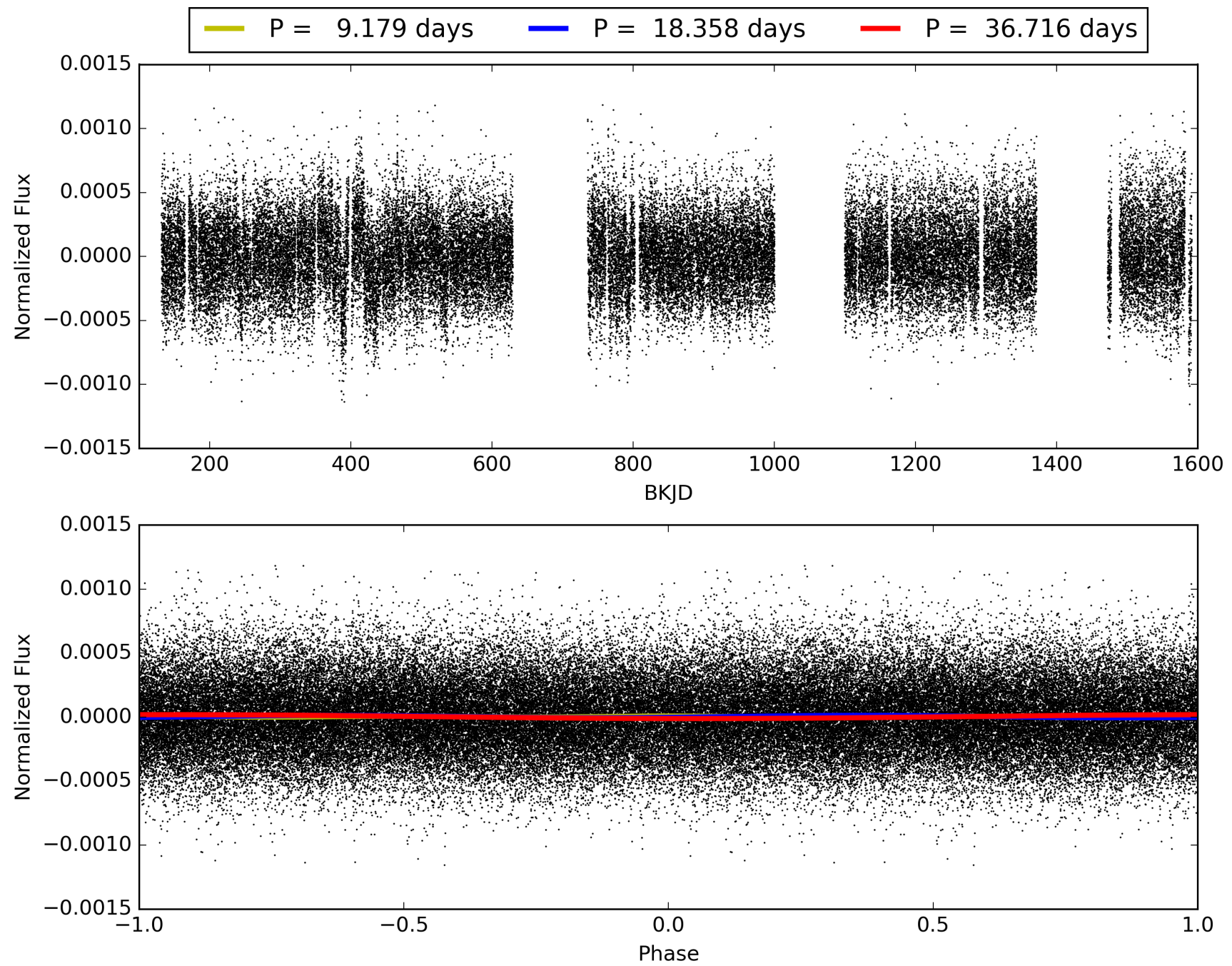
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:20:06 Z

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

TCE 010620386-07, PDC Light Curves

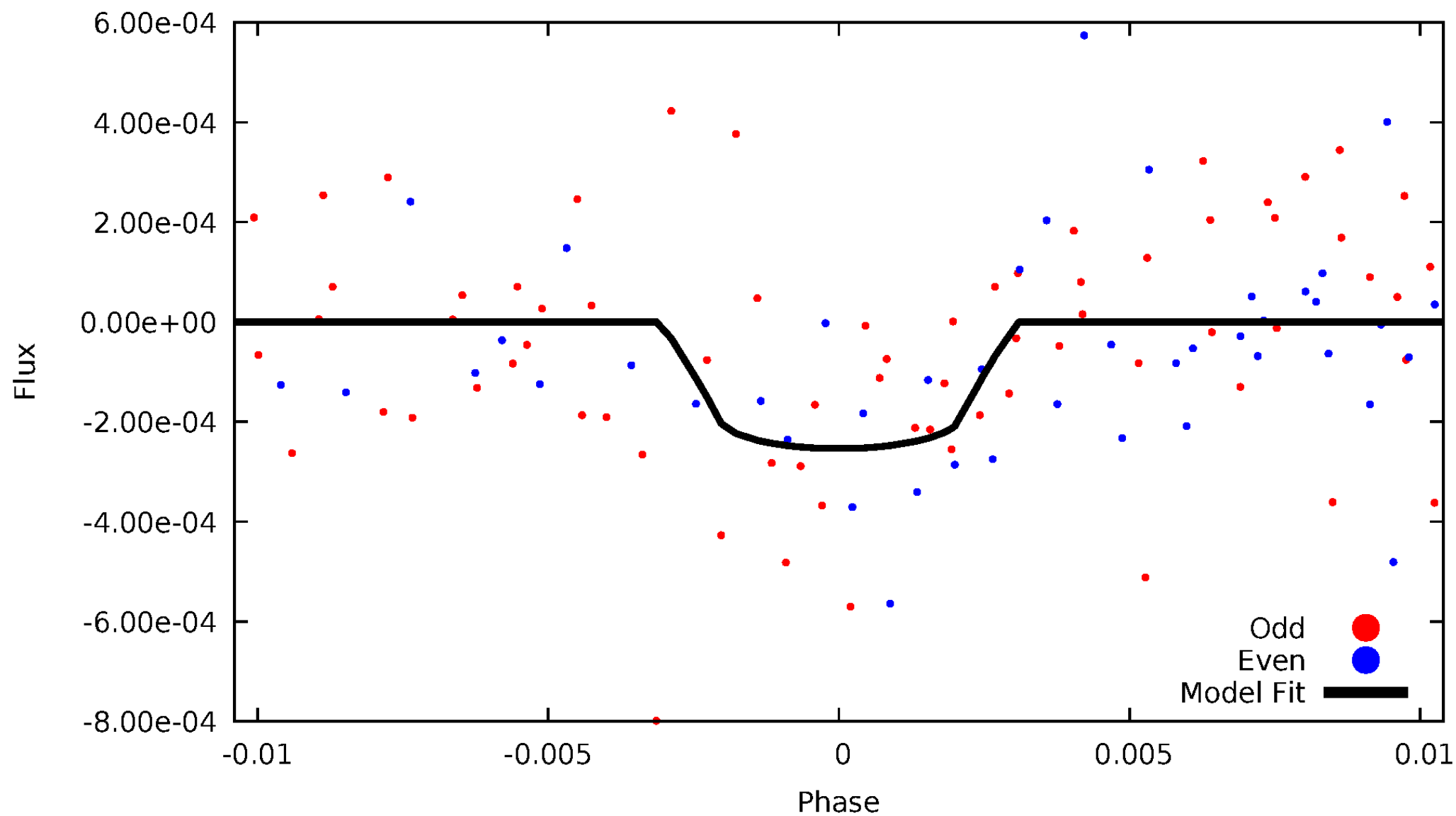


TCE 010620386-07



DV Odd/Even

TCE 010620386-07

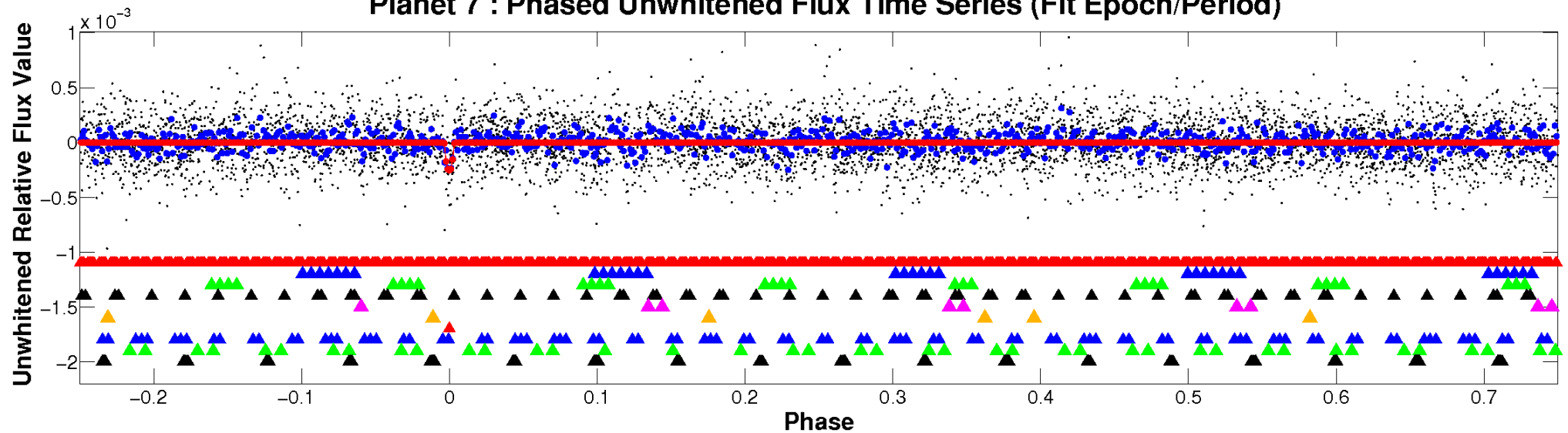


ALT Odd/Even

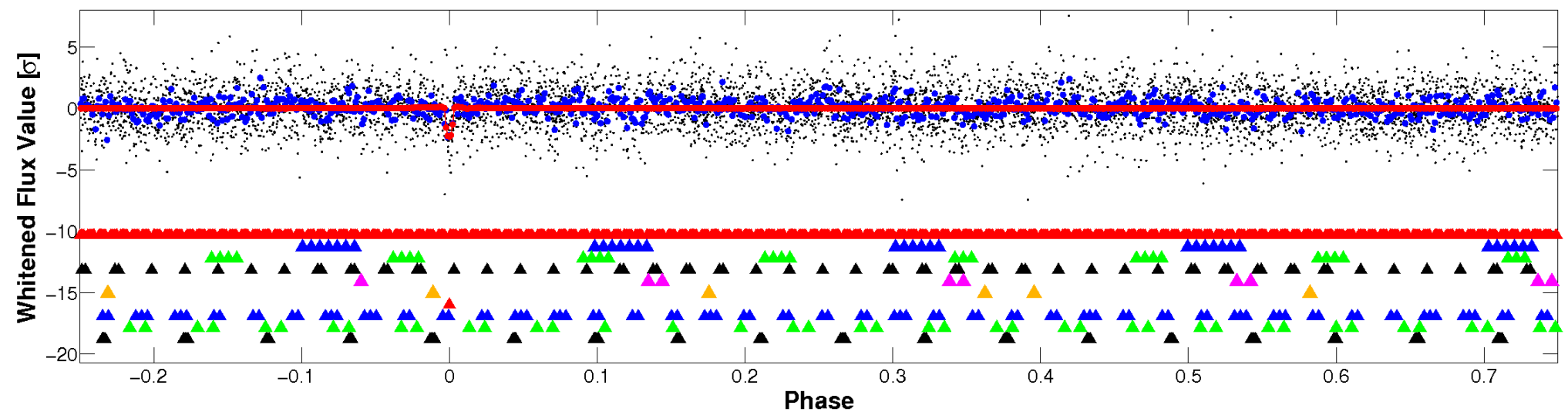
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

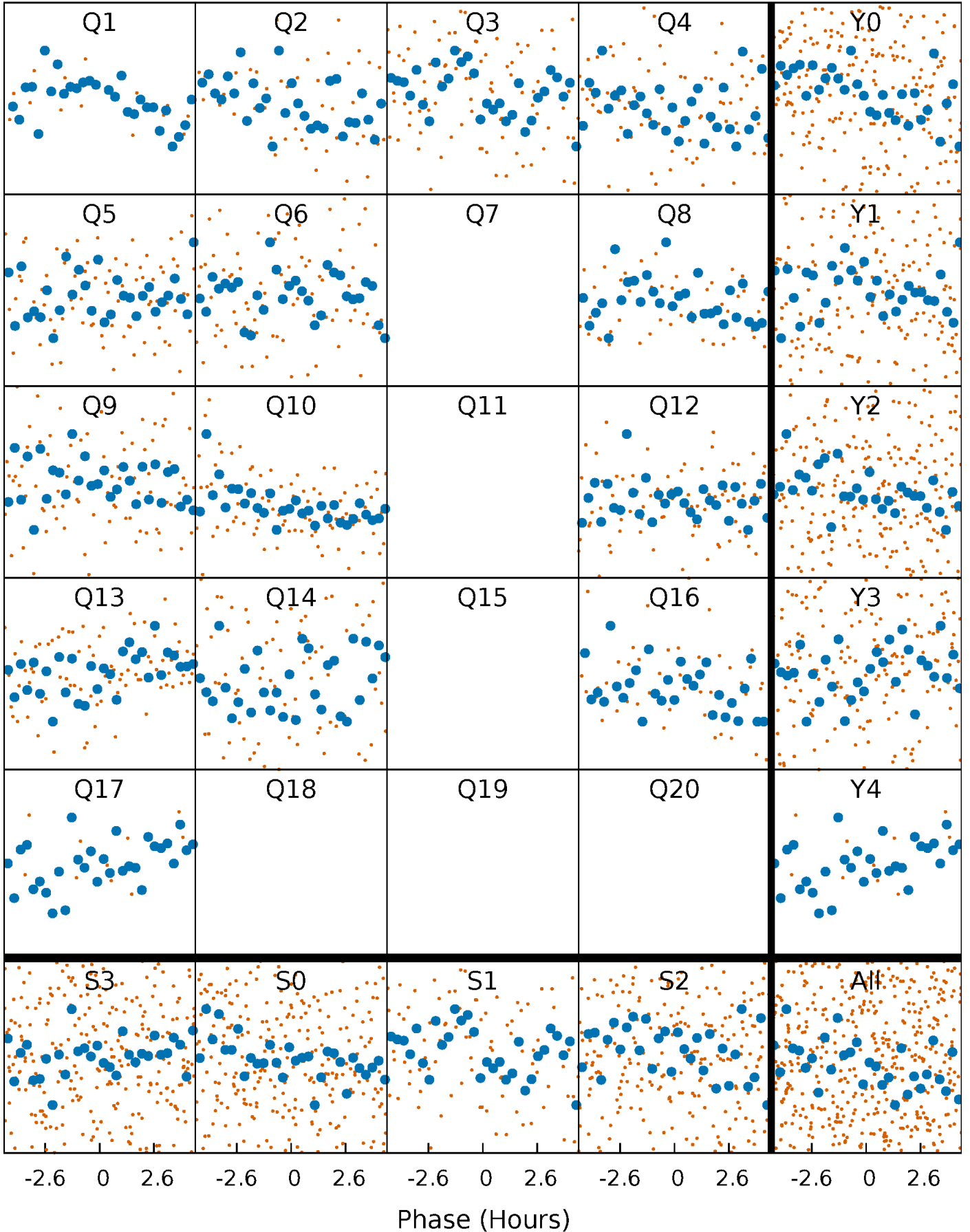


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



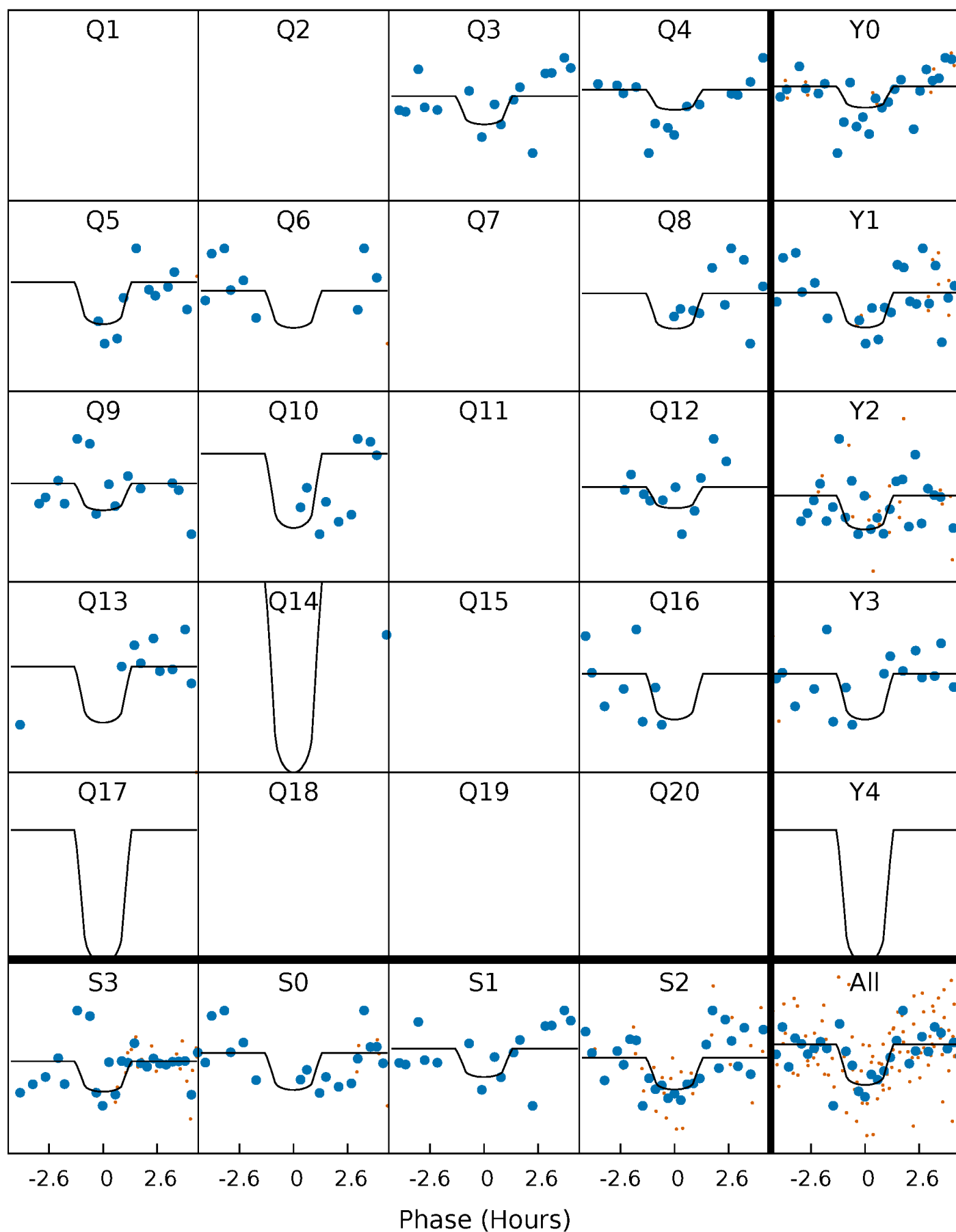
PDC Quarter-Phased Transit Curves

TCE 010620386-07 P= 18.357959 Days $T_0=145.864348$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 010620386-07 P= 18.357959 Days $T_0=145.864348$ (BKJD)

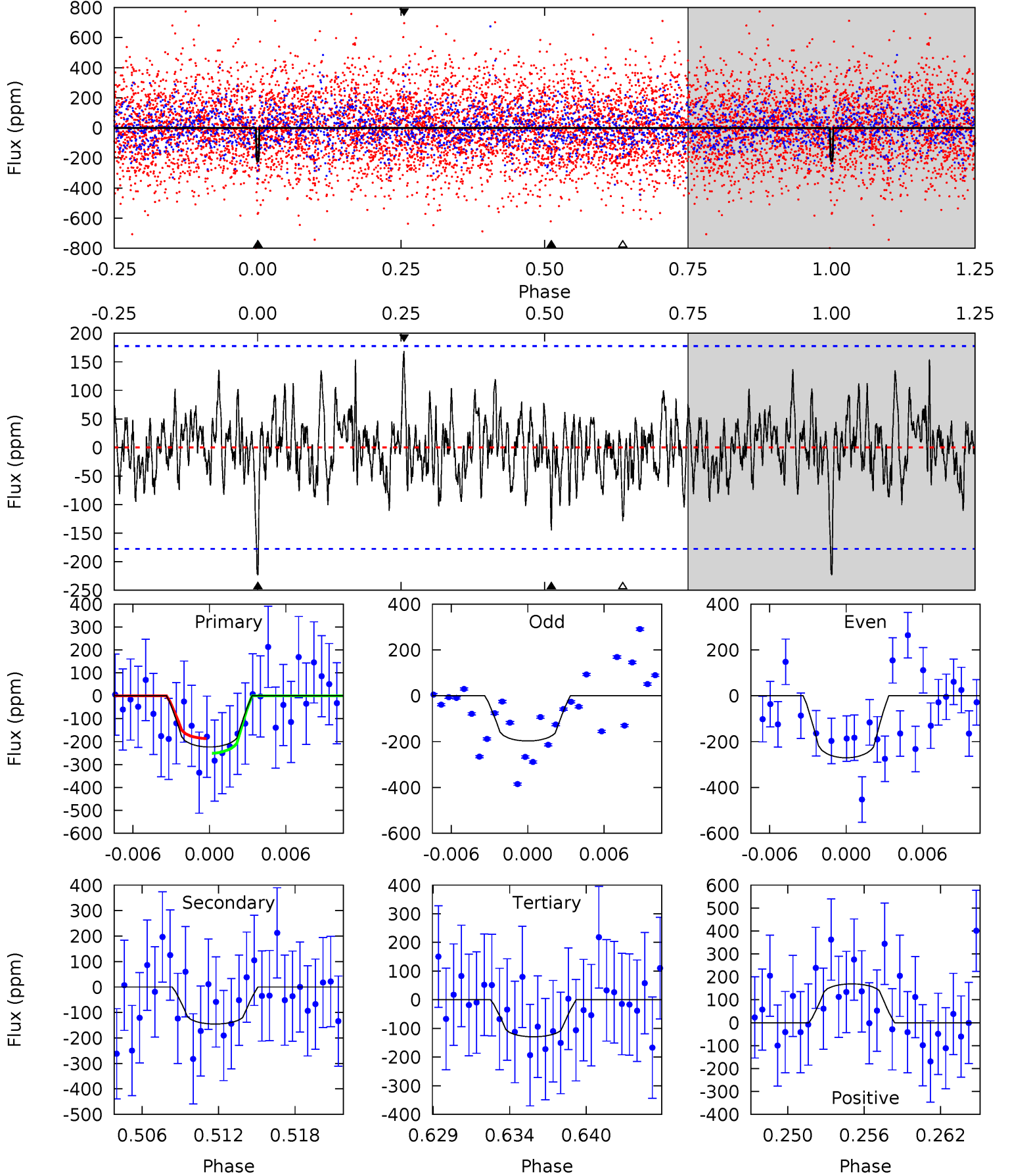


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

010620386-07, P = 18.357959 Days, E = 127.506389 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.46	4.19	3.73	4.89	5.14	2.77	1.29	2.72	1.57	0.46	-0.69	1.00	1.05	0.43	0.89



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 010620386

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6760^{+189}_{-236}	$4.187^{+0.158}_{-0.175}$	$-0.340^{+0.250}_{-0.300}$	$1.482^{+0.410}_{-0.336}$	$1.237^{+0.170}_{-0.208}$	$0.536^{+0.500}_{-0.263}$
	+3%/-3%	+4%/-4%	+74%/-88%	+28%/-23%	+14%/-17%	+93%/-49%
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 010620386-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-145 ± 35	$3.49^{+3.29}_{-2.21}$	1331^{+98}_{-88}	5074^{+3371}_{-1157}	135^{+831}_{-100}
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 $A_{obs} \gg 1.0$

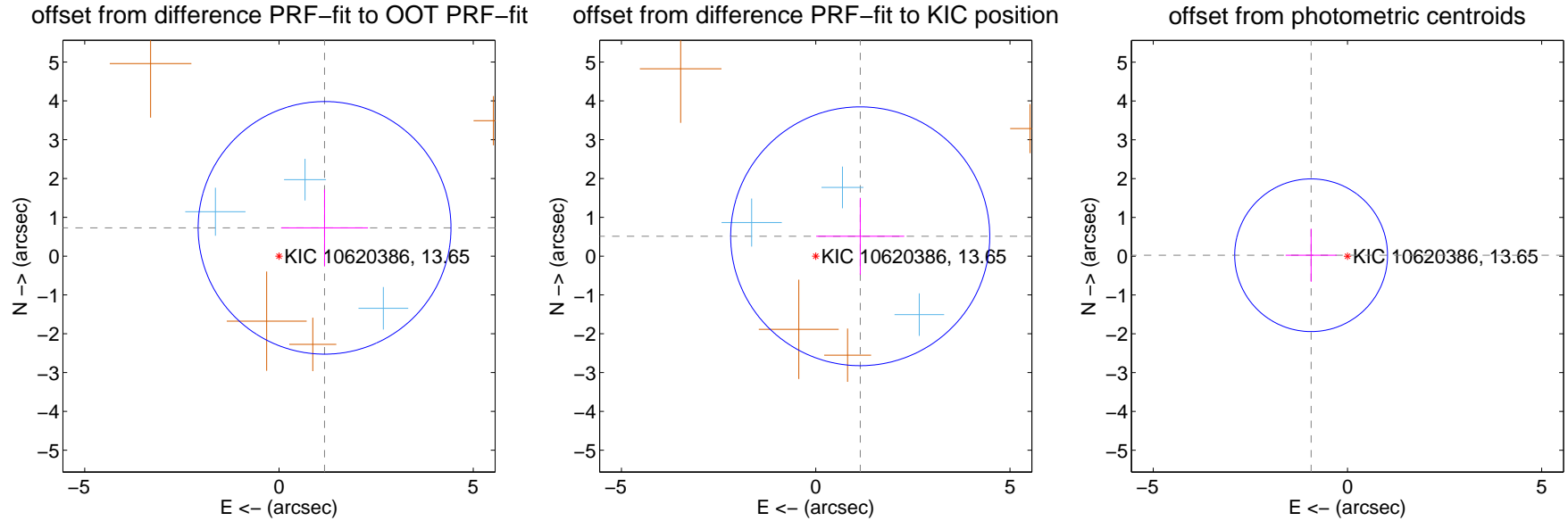
DV Centroid Data

Supplemental centroid analysis for 010620386-07. Kepler magnitude: 13.65. Transit SNR 10.89

There are 3 quarters with good PRF difference image offsets

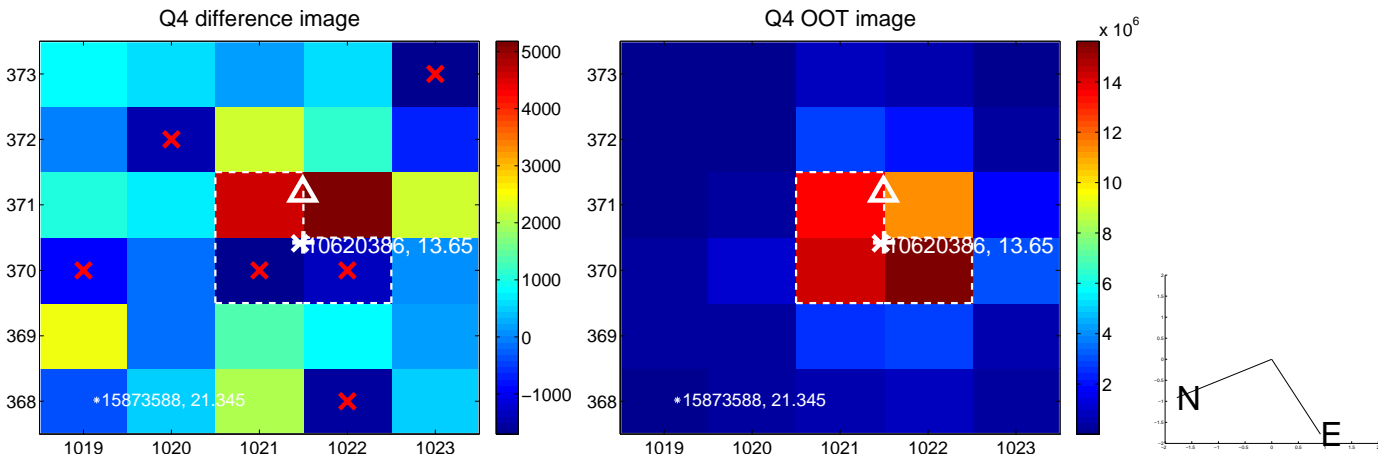
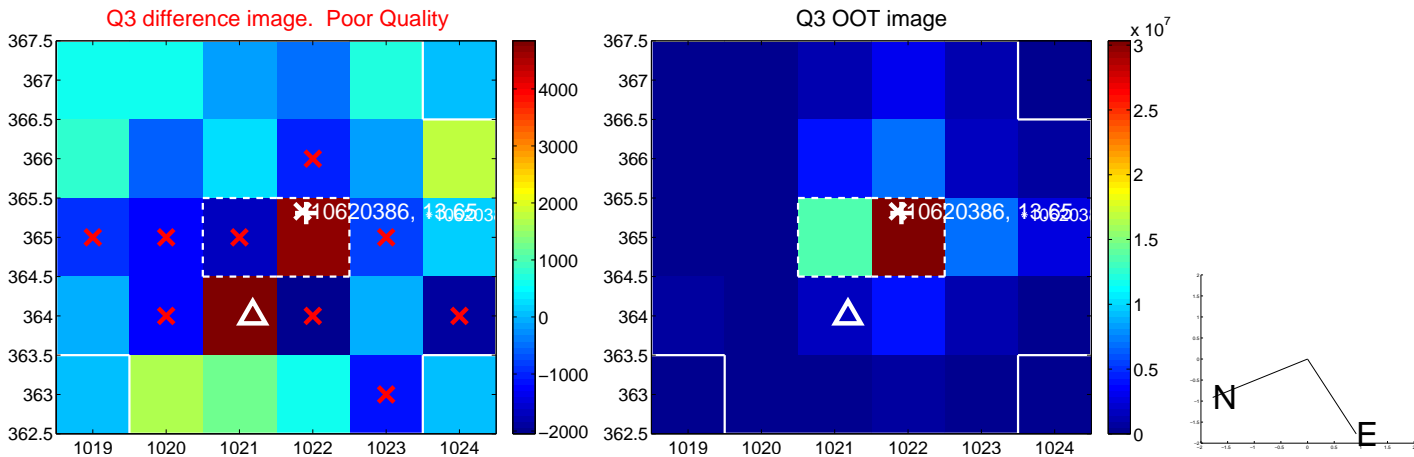
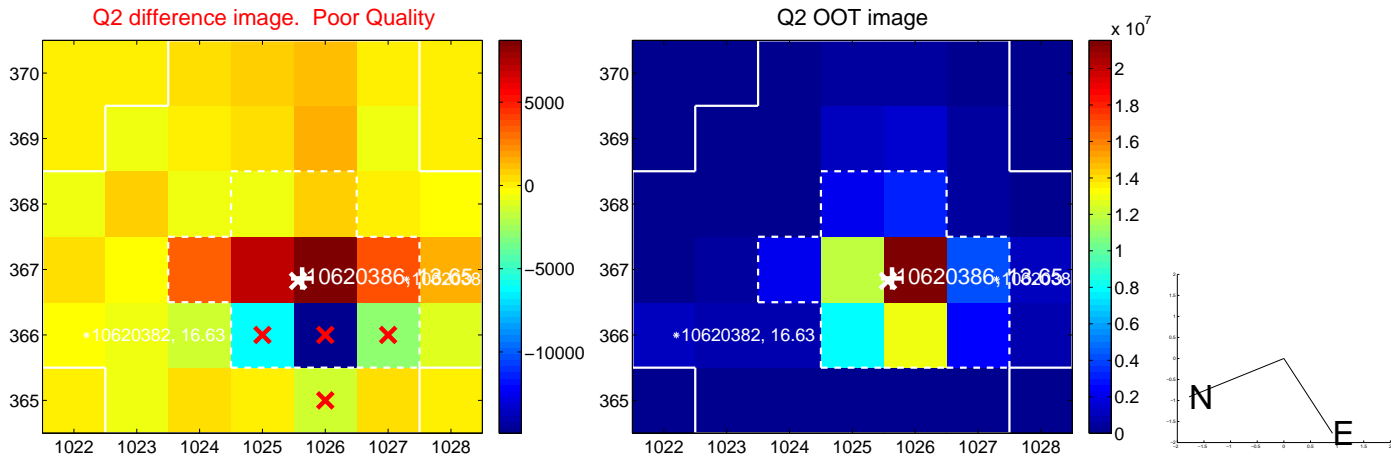
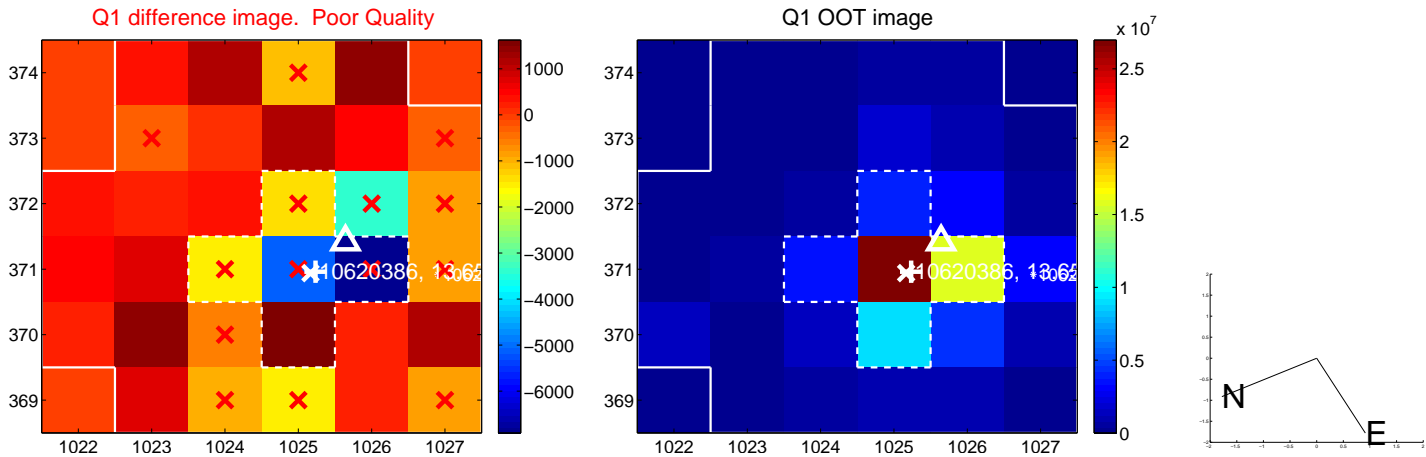
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.381 ± 1.084	1.27	-1.173 ± 1.119	0.729 ± 0.989
PRF-fit source offset from KIC position	1.254 ± 1.111	1.13	-1.145 ± 1.134	0.511 ± 0.989
photometric centroid source offset	0.94 ± 0.66	1.43	0.94 ± 0.66	0.02 ± 0.68

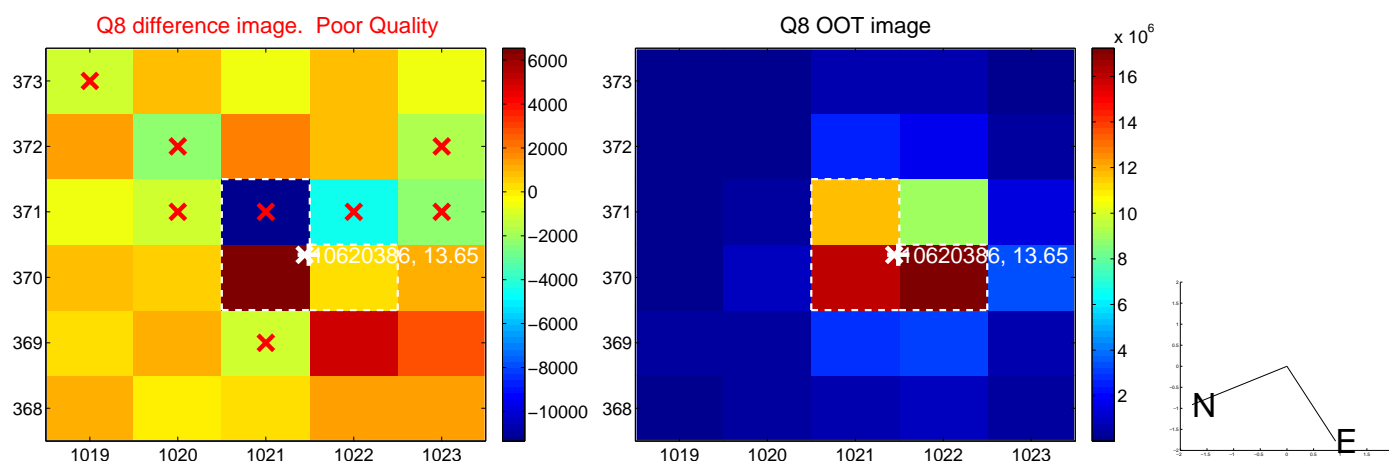
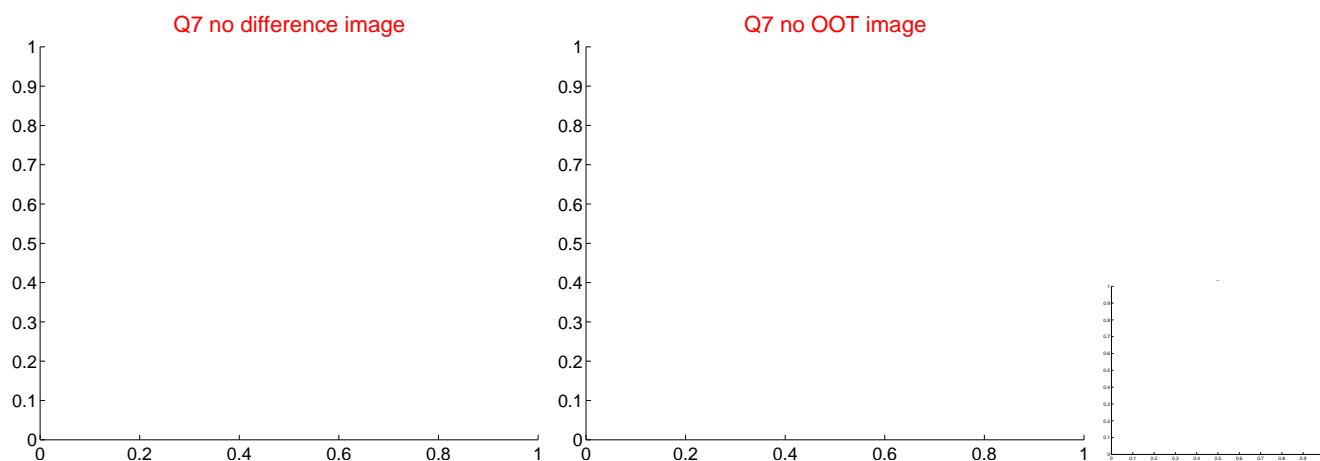
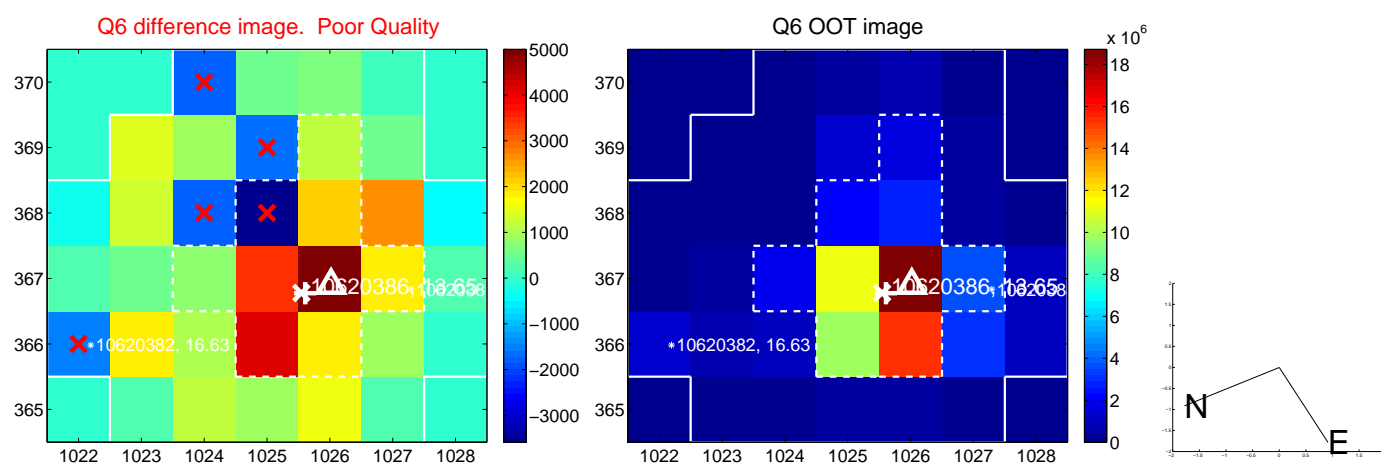
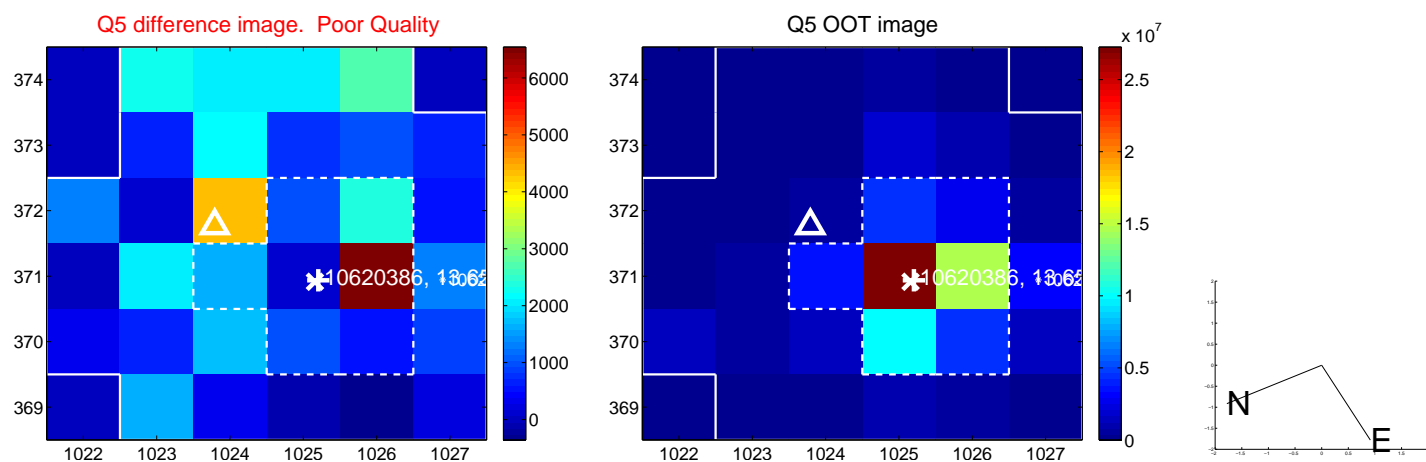


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

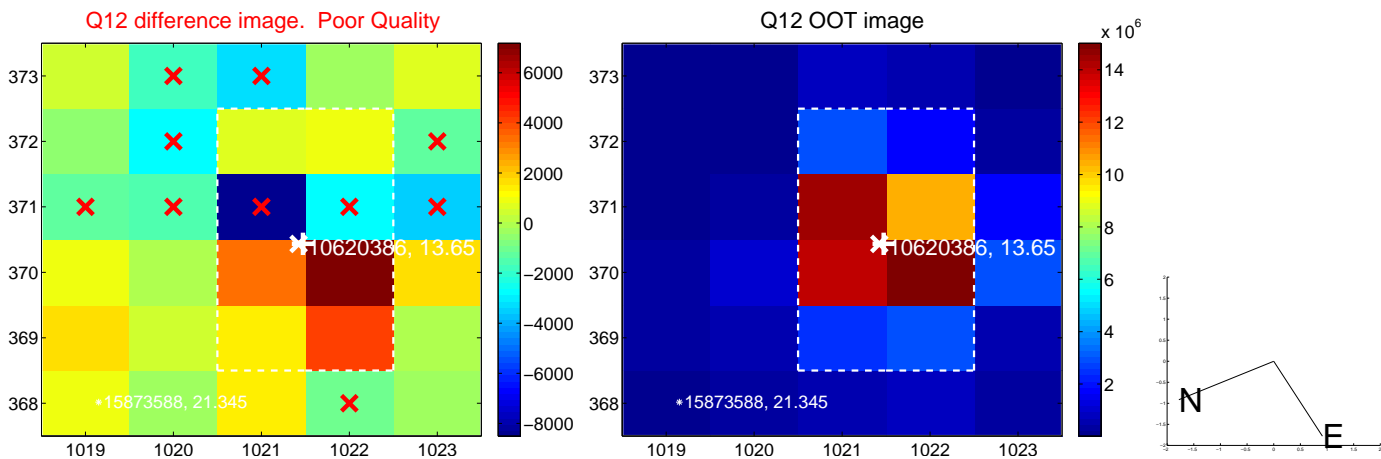
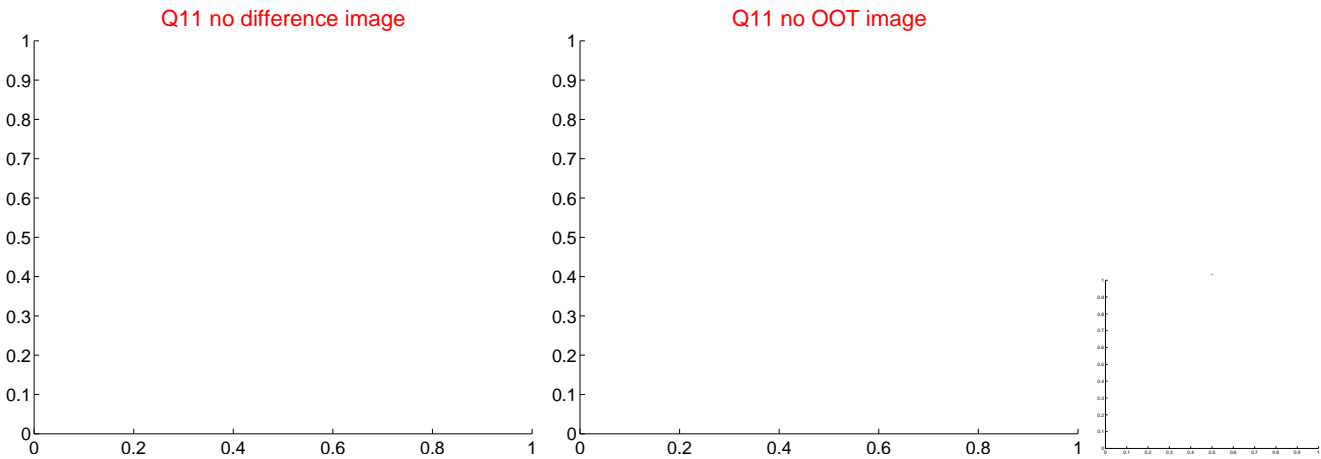
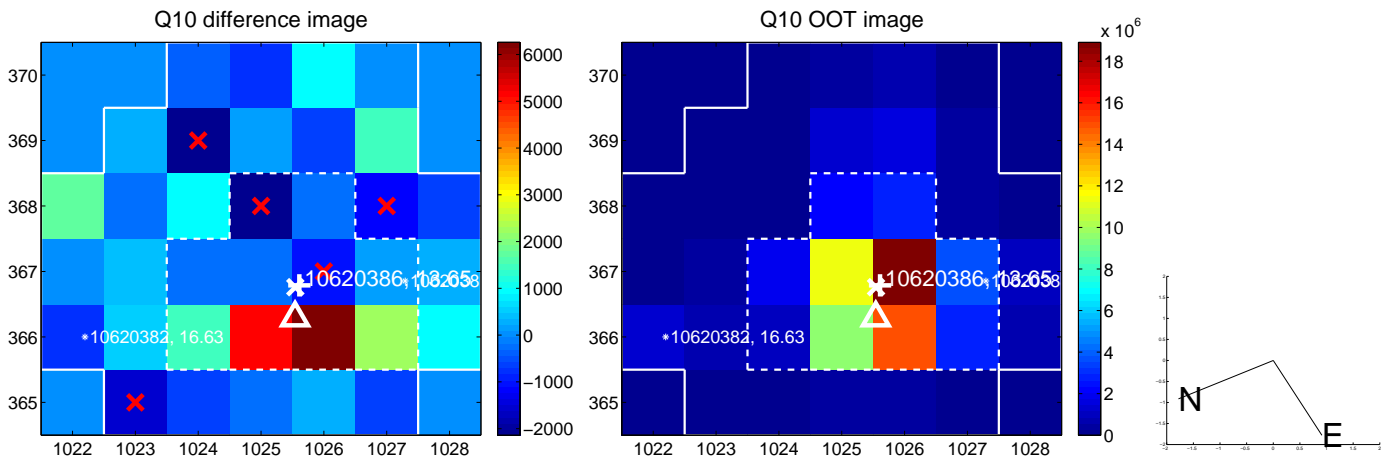
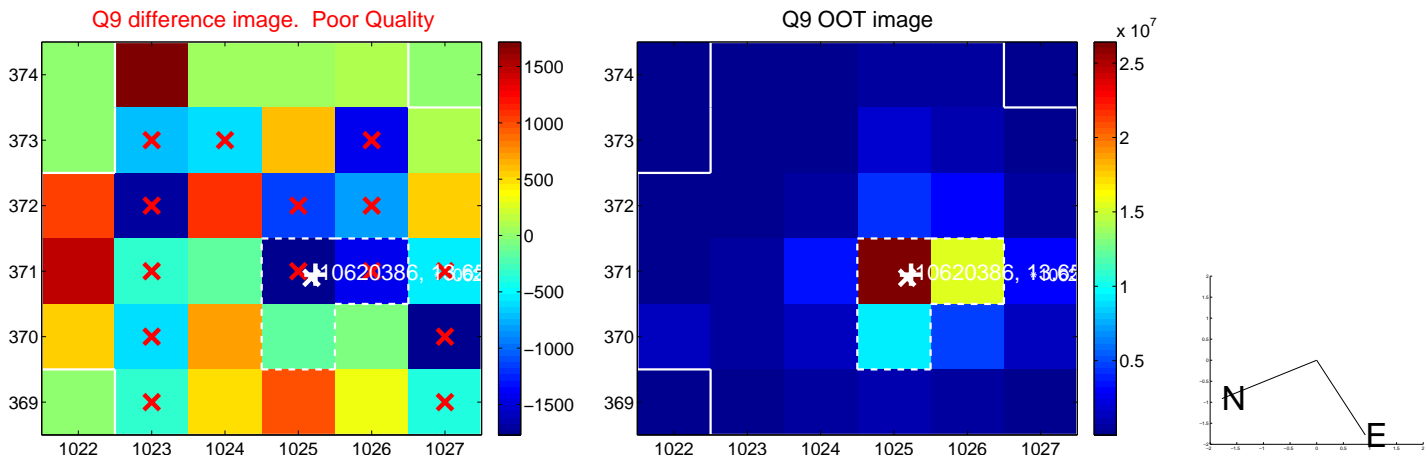
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



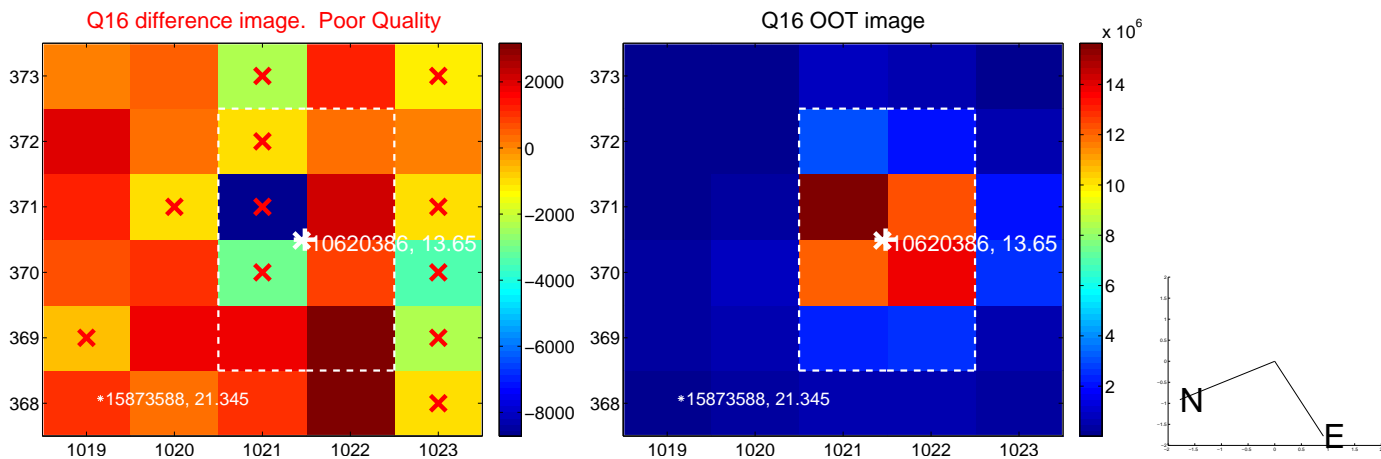
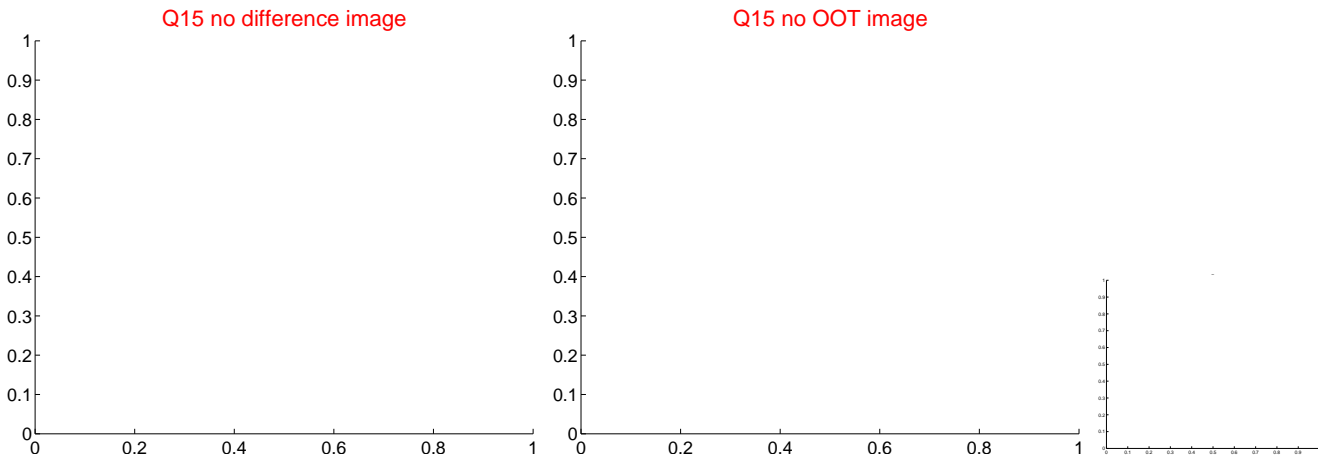
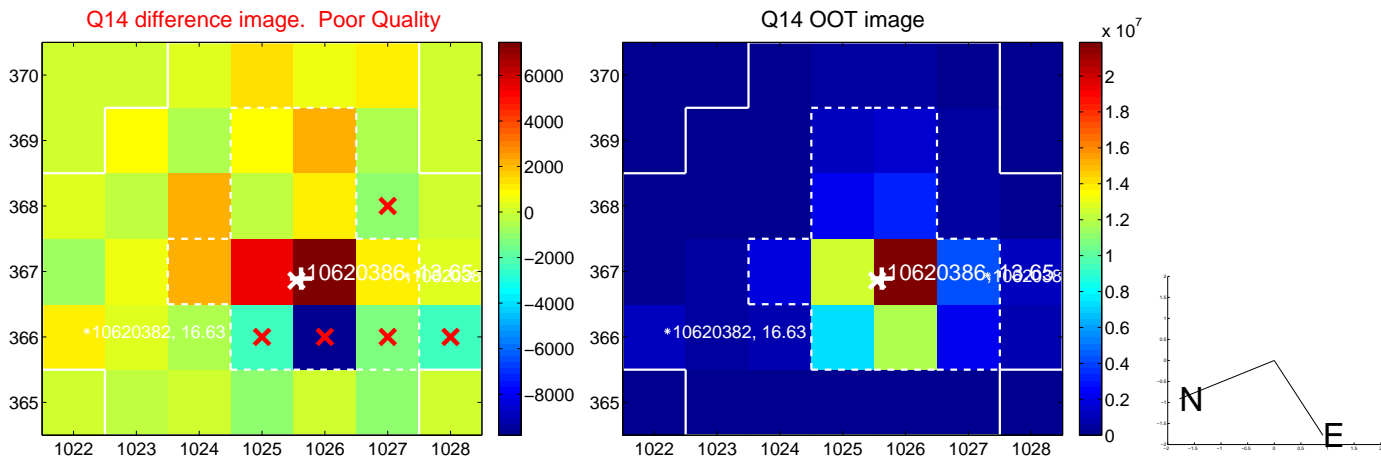
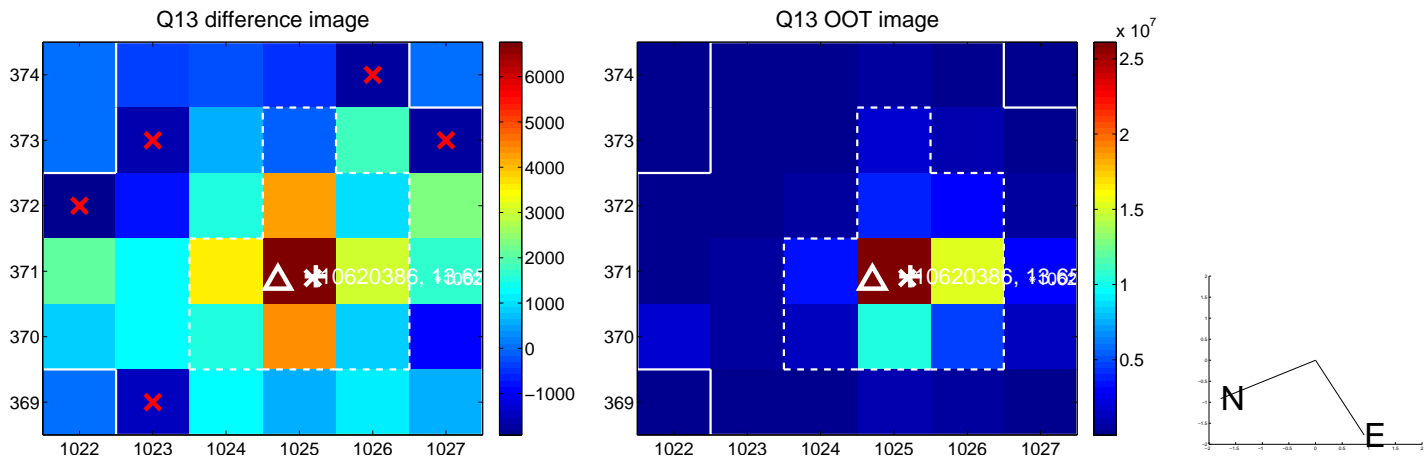
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



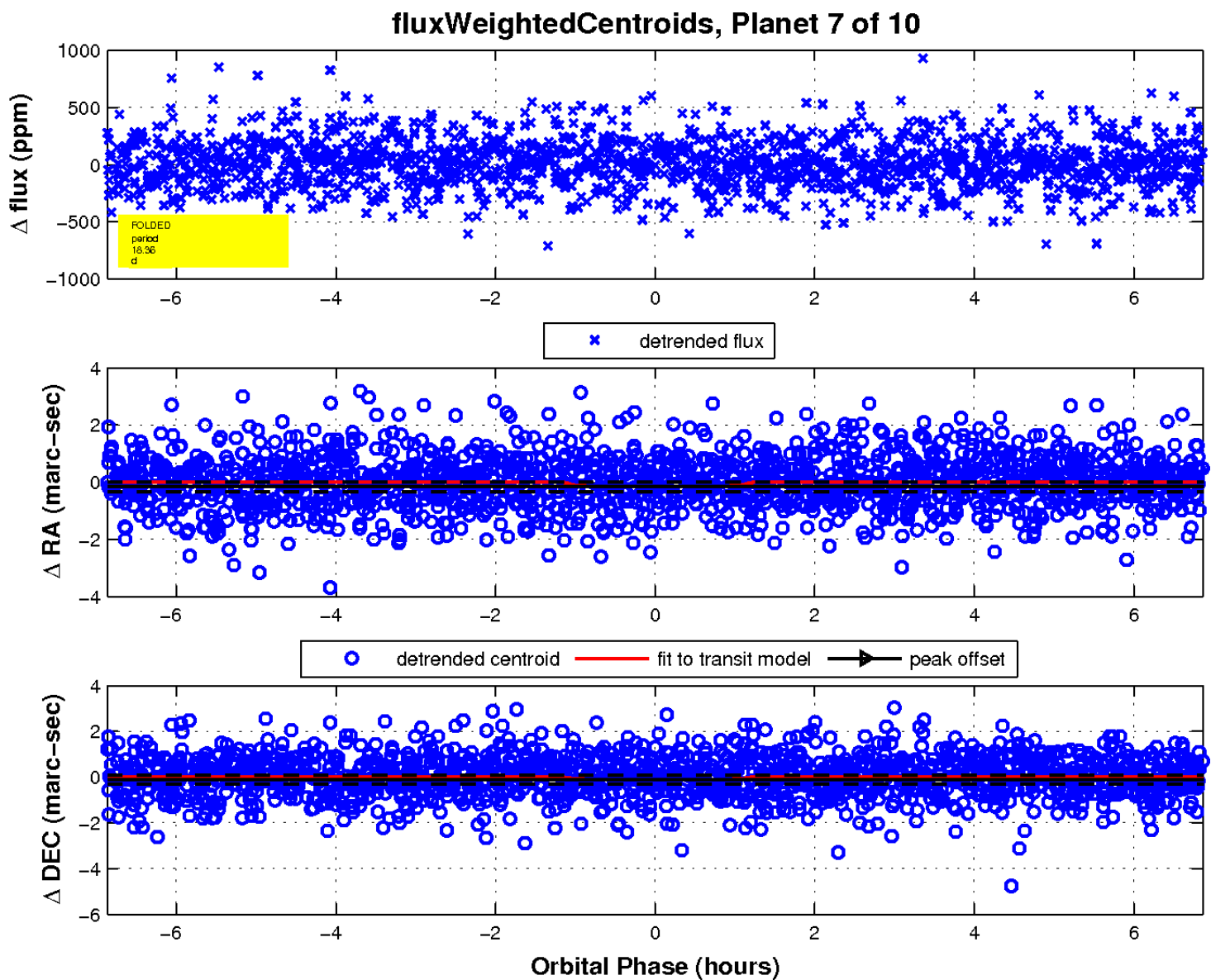
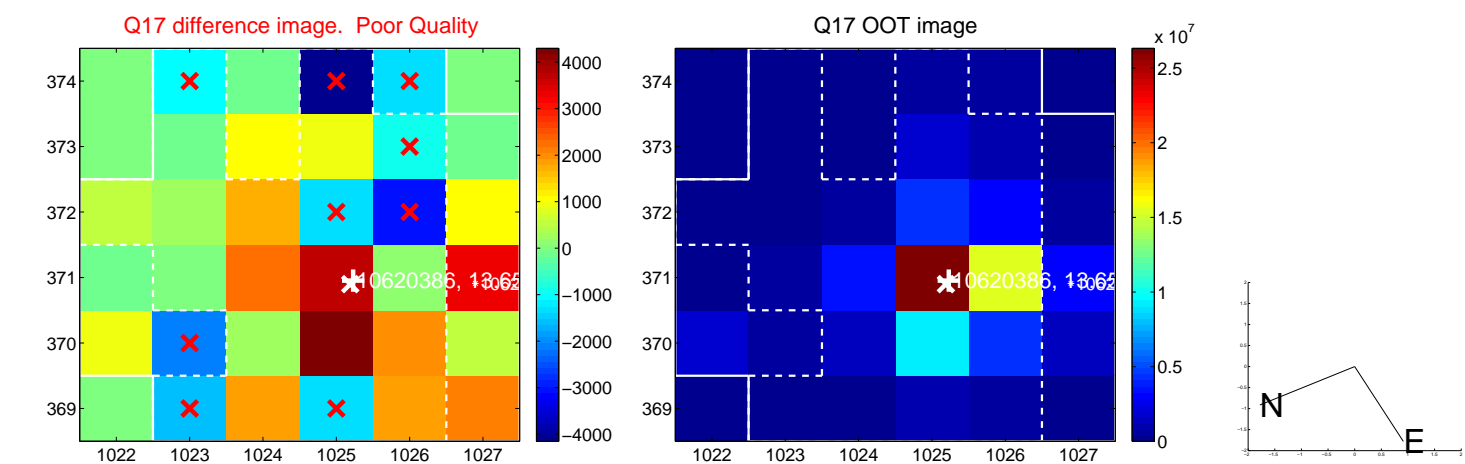
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

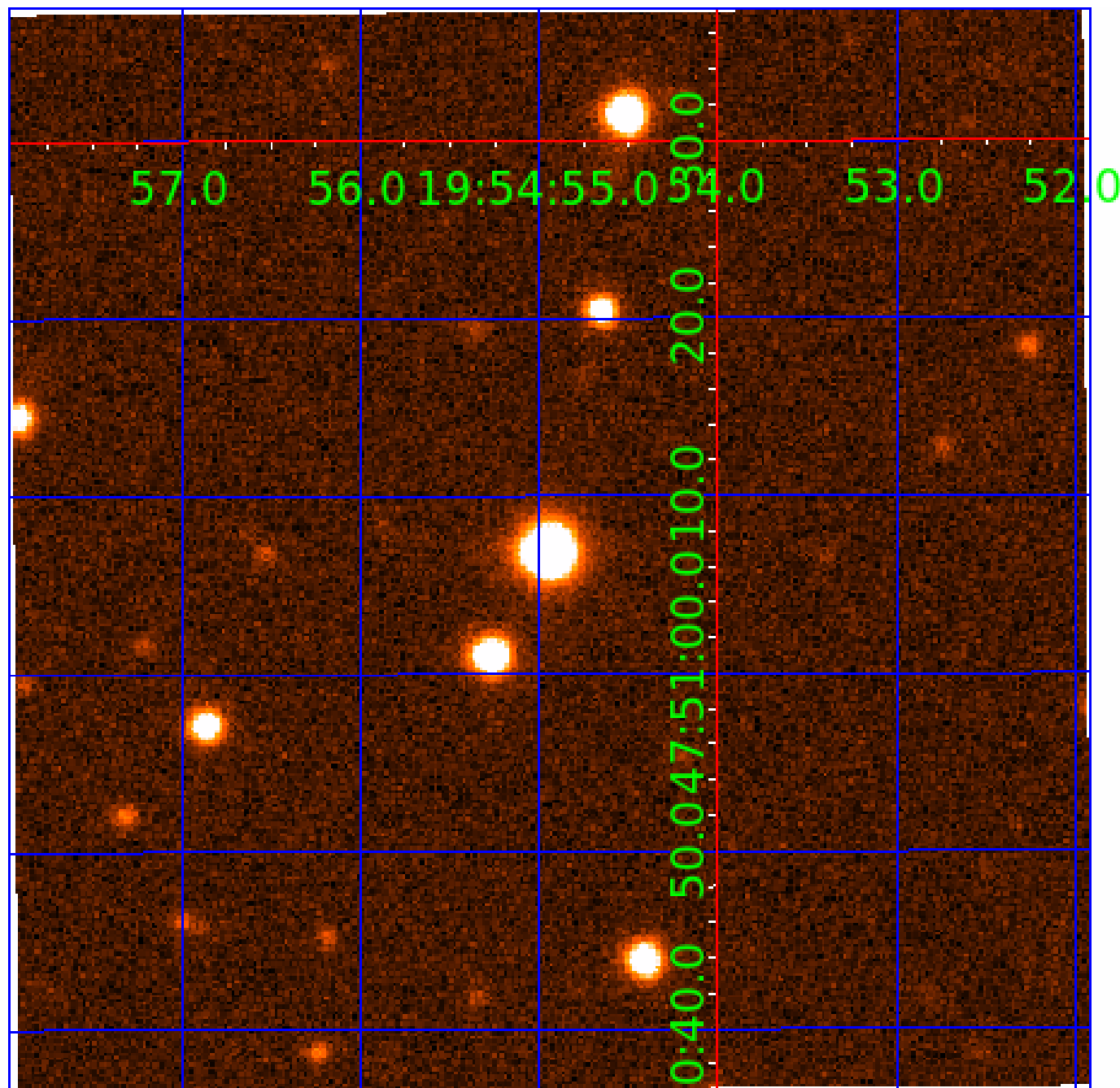


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
010620386-01	OBS	No	1.767922	132.121428	5.8	12.225	7.9	2.4	1.48	6760	0.38	4364.78
010620386-02	OBS	No	44.080619	166.027943	343.6	2.145	12.5	11.5	1.48	6760	2.95	59.92
010620386-03	OBS	No	48.202635	163.525750	465.8	2.026	11.2	9.4	1.48	6760	3.40	53.19
010620386-04	OBS	No	22.111977	133.011494	313.4	2.066	11.3	10.7	1.48	6760	2.94	150.34
010620386-05	OBS	No	157.912847	247.435004	263.1	5.144	9.8	9.7	1.48	6760	2.71	10.93
010620386-06	OBS	No	282.834750	152.515978	274.3	3.433	8.8	9.1	1.48	6760	2.72	5.03
010620386-07	OBS	No	18.357959	145.864348	253.8	2.290	10.9	10.9	1.48	6760	2.41	192.67
010620386-08	OBS	No	16.002501	147.312204	275.0	2.385	9.2	8.6	1.48	6760	2.77	231.38
010620386-09	OBS	No	35.872668	147.147565	262.3	3.732	8.5	8.7	1.48	6760	2.65	78.87
010620386-10	OBS	No	23.456372	140.582661	266.4	2.684	8.4	7.5	1.48	6760	2.82	138.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010620386-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010620386-09	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
010620386-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

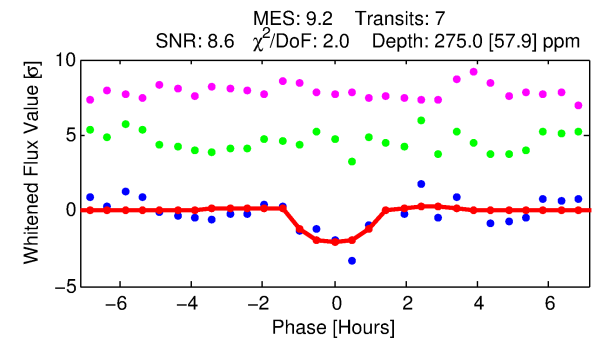
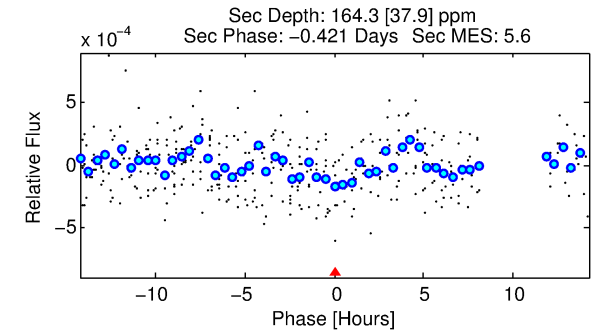
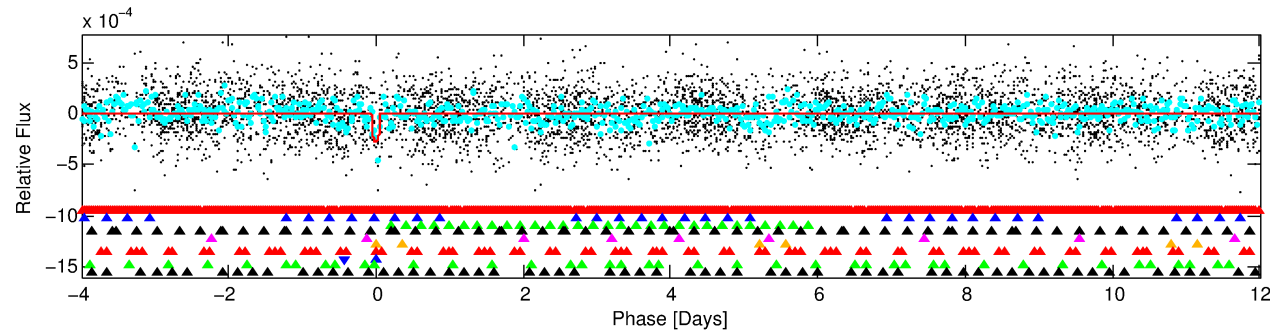
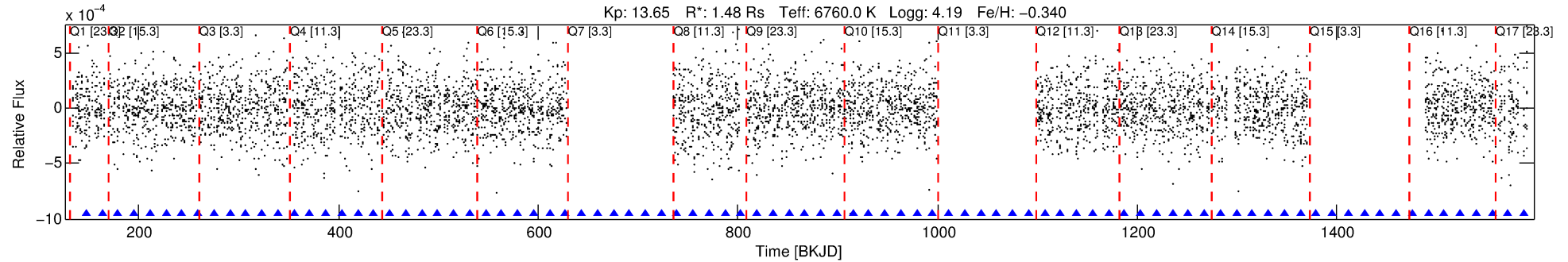
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010620386-08

No Significant Match Found

DV One-Page Summary

KIC: 10620386 Candidate: 8 of 10 Period: 16.003 d

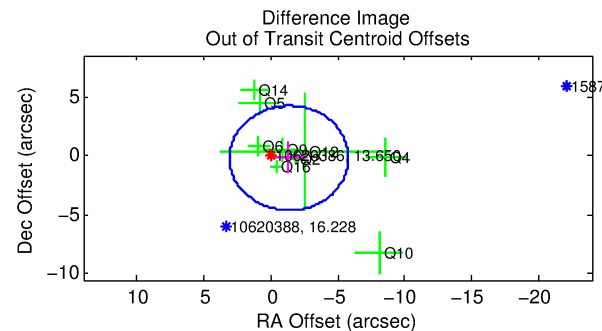
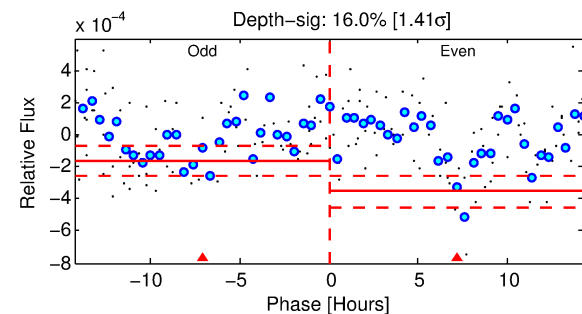
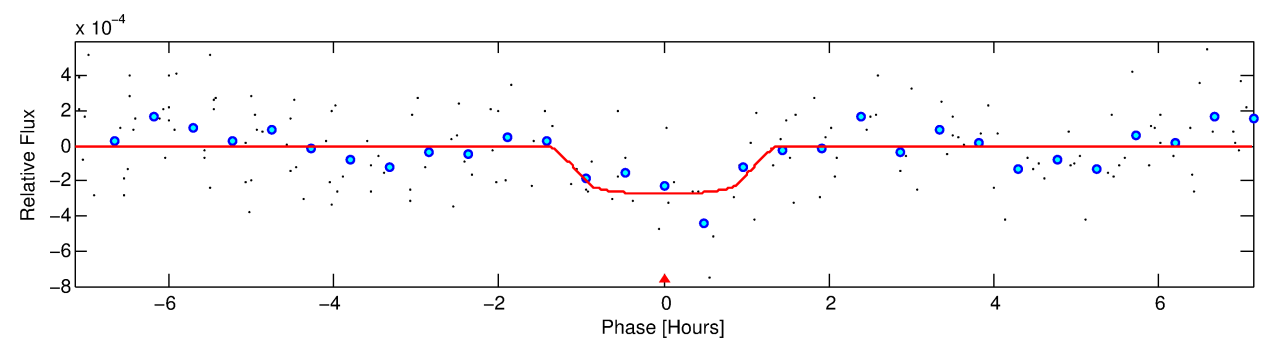


DV Fit Results:

Period = 16.00250 [0.00022] d
Epoch = 147.3122 [0.0099] BKJD
Rp/R* = 0.0171 [0.0240]
a/R* = 28.75 [234.16]
b = 0.85 [2.72]
Seff = 231.38 [82.03]
Teff = 995 [88] K
Rp = 2.77 [3.95] Re
a = 0.1333 [0.0304] AU
Ag = 208.72 [589.33] [0.35σ]
Teffp = 5844 [4103] K [1.18σ]

DV Diagnostic Results:

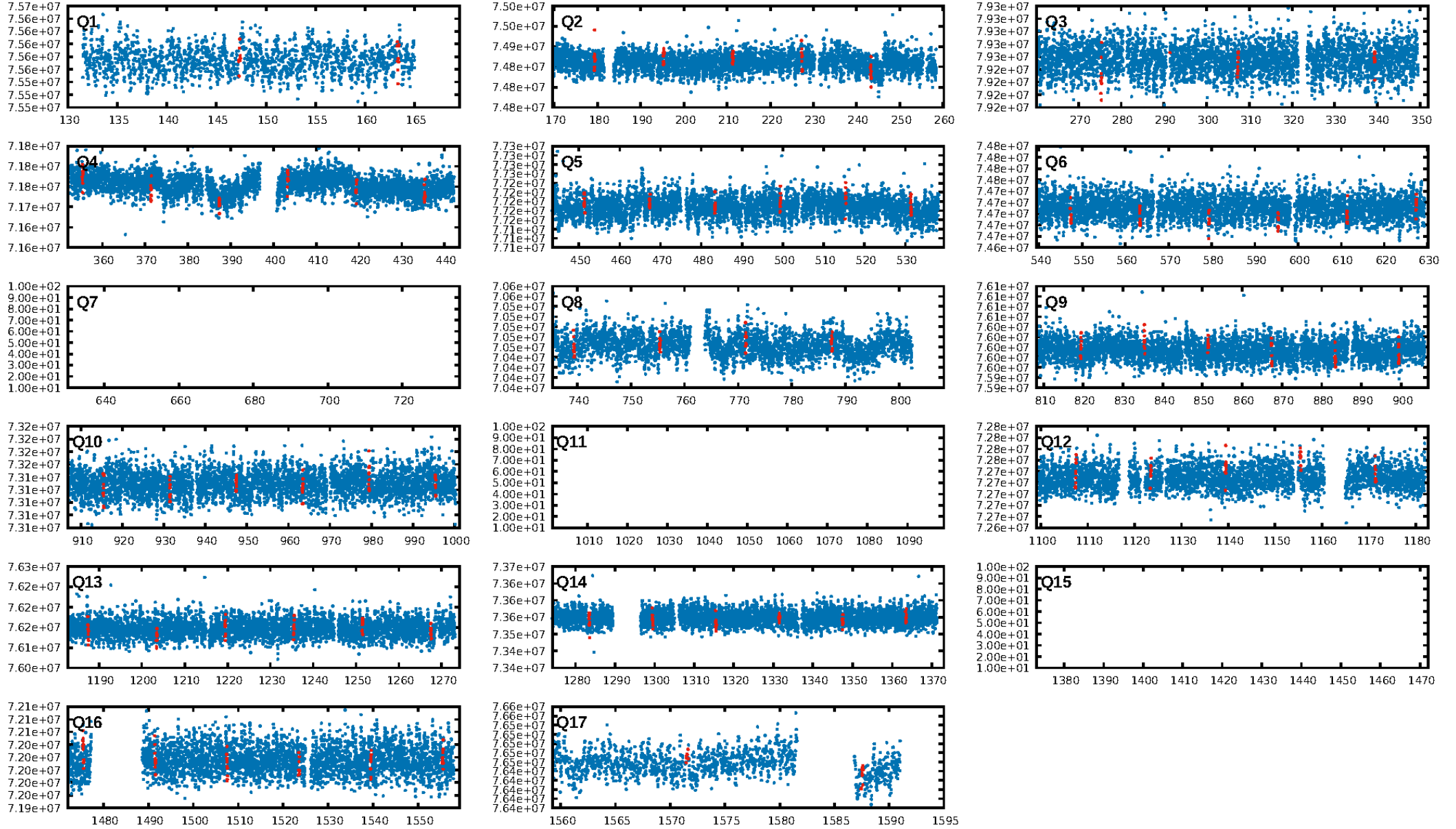
ShortPeriod-sig: 100.0% [27.43σ]
LongPeriod-sig: 100.0% [17.10σ]
ModelChiSquare2-sig: 0.8%
ModelChiSquareGof-sig: 90.5%
Bootstrap-pfa: 3.95e-08
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -0.975
Centroid-sig: 28.4%
Centroid-so: 0.837 arcsec [1.44σ]
OotOffset-rm: 1.375 arcsec [0.93σ]
KicOffset-rm: 1.413 arcsec [1.03σ]
OotOffset-st: 4/0/3/2 [9]
KicOffset-st: 4/0/3/2 [9]
DiffImageQuality-fgm: 0.22 [2/9]
DiffImageOverlap-fno: 0.36 [5/14]



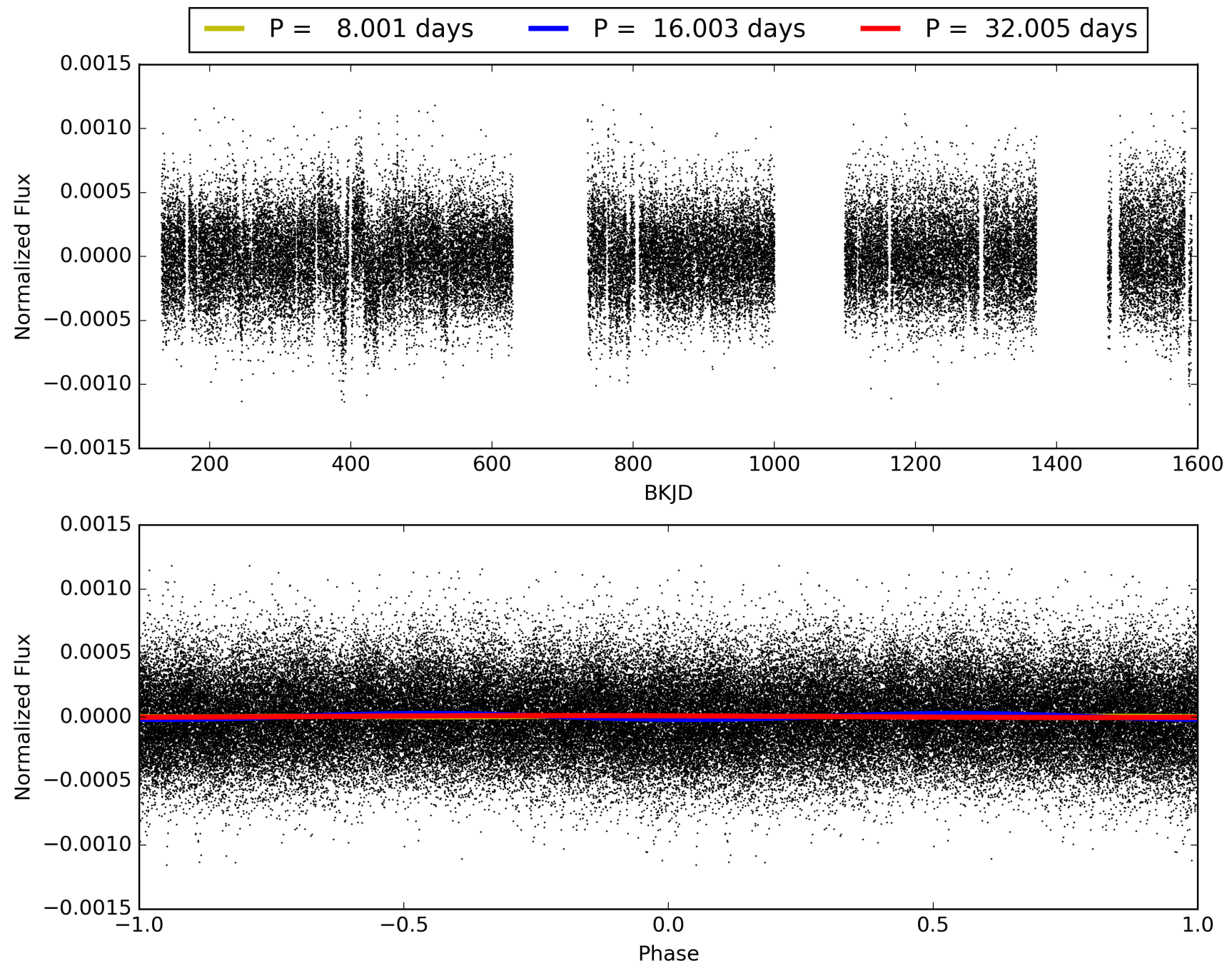
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:20:09 Z

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

TCE 010620386-08, PDC Light Curves

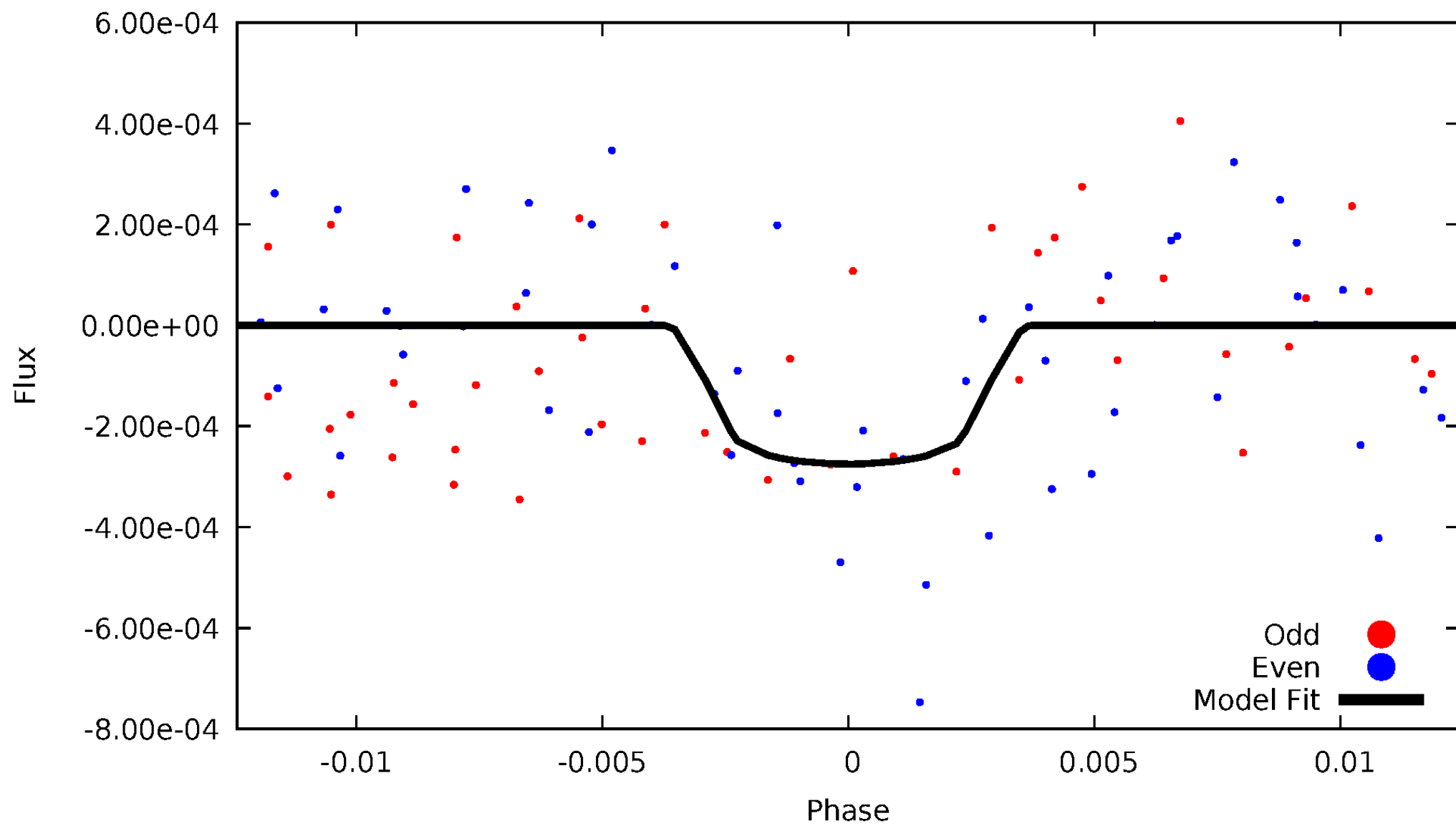


TCE 010620386-08



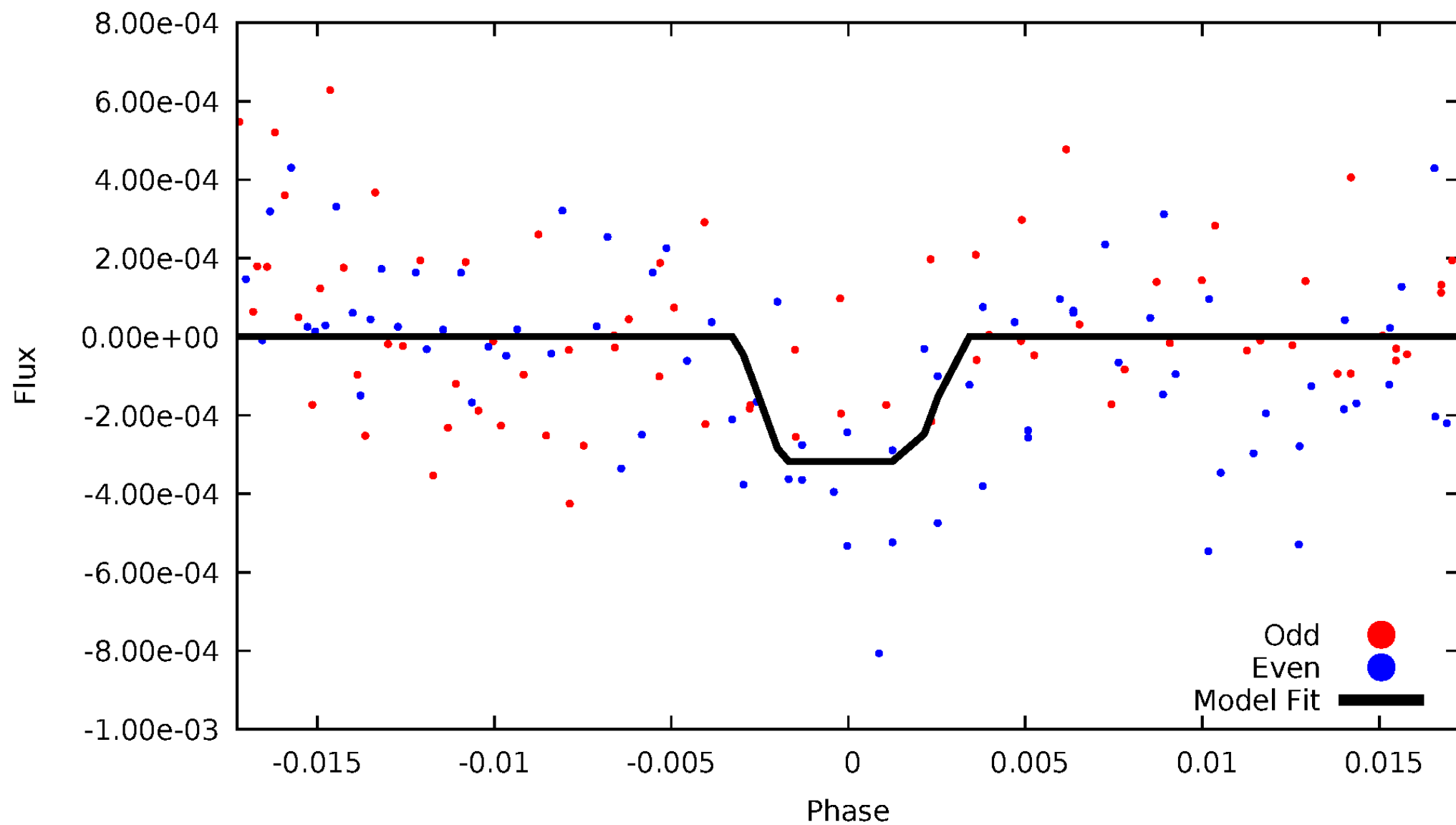
DV Odd/Even

TCE 010620386-08



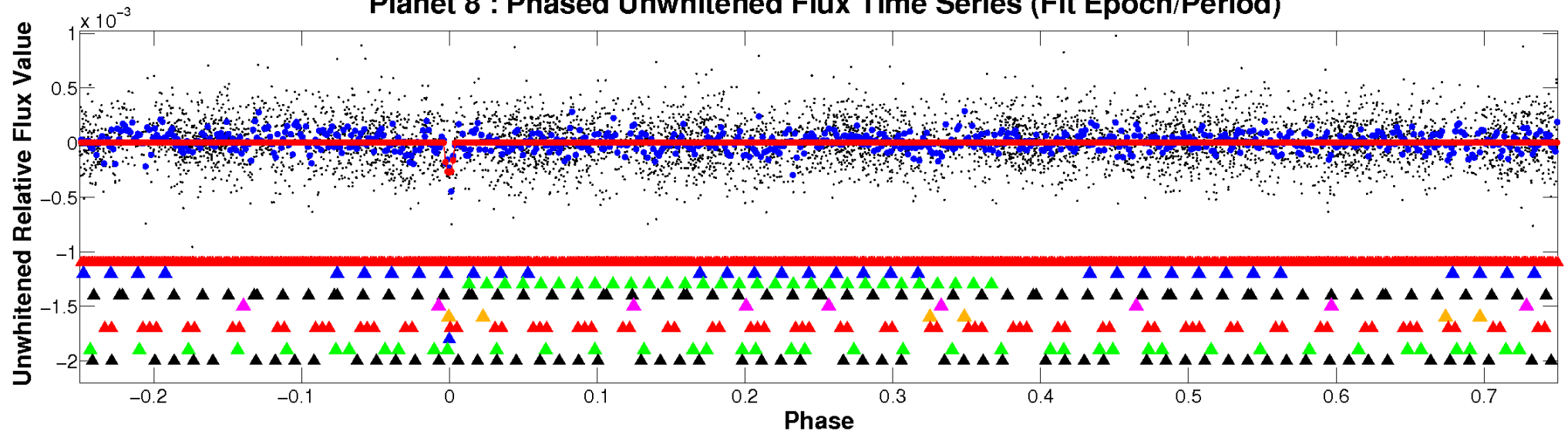
ALT Odd/Even

TCE 010620386-08

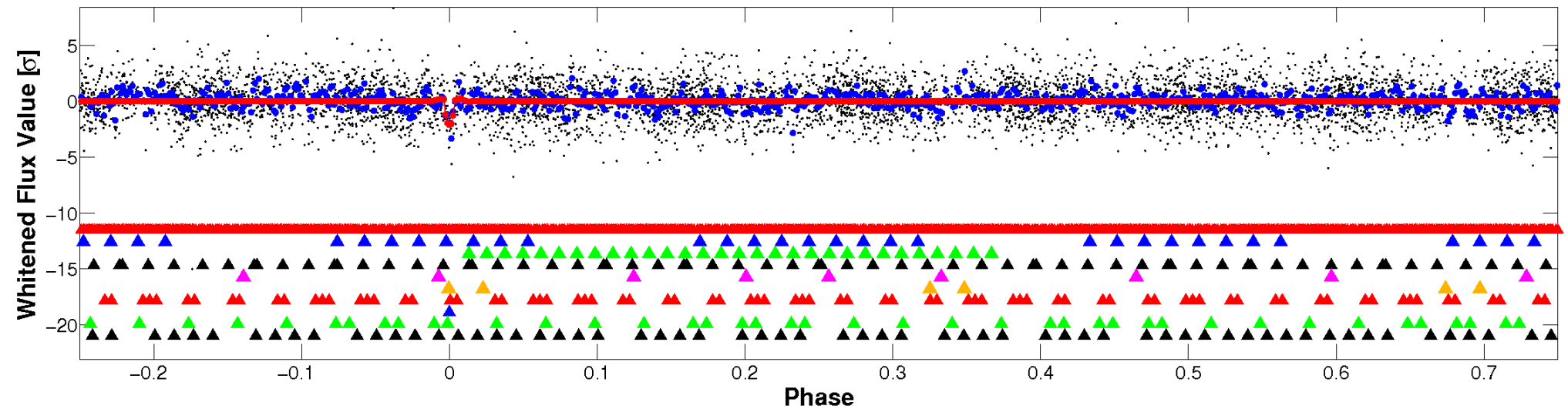


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

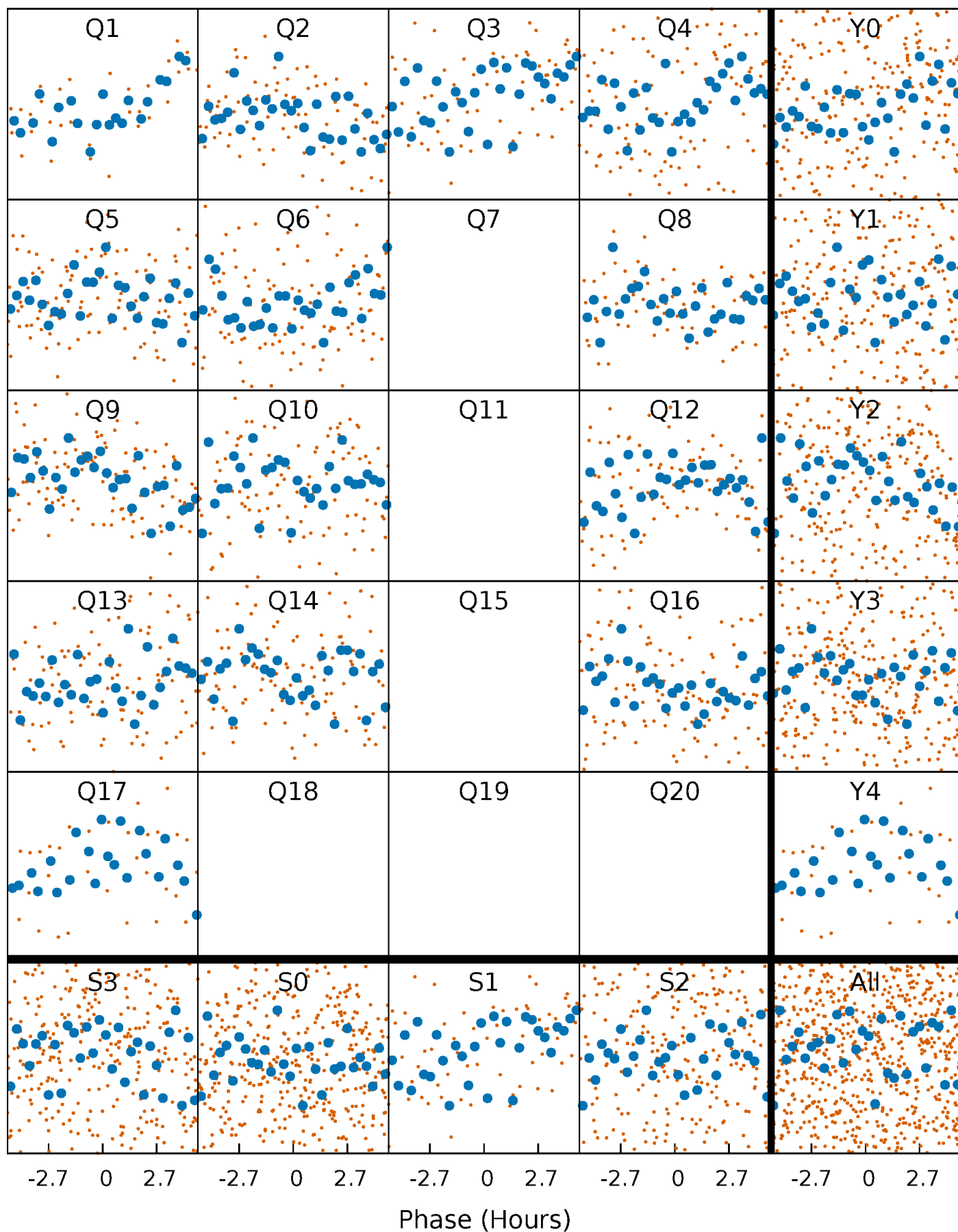


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



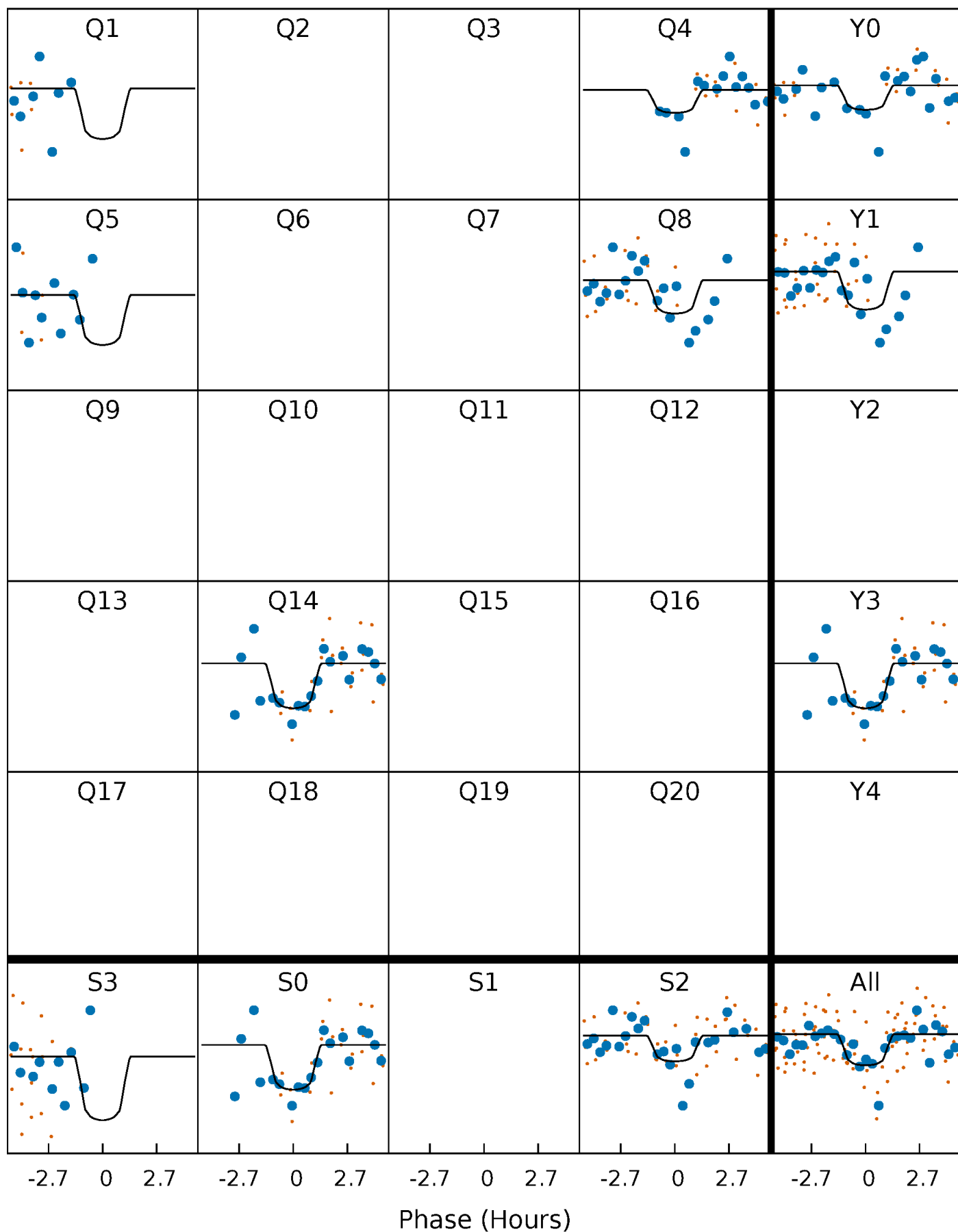
PDC Quarter-Phased Transit Curves

TCE 010620386-08 P= 16.002501 Days $T_0=147.312204$ (BKJD)



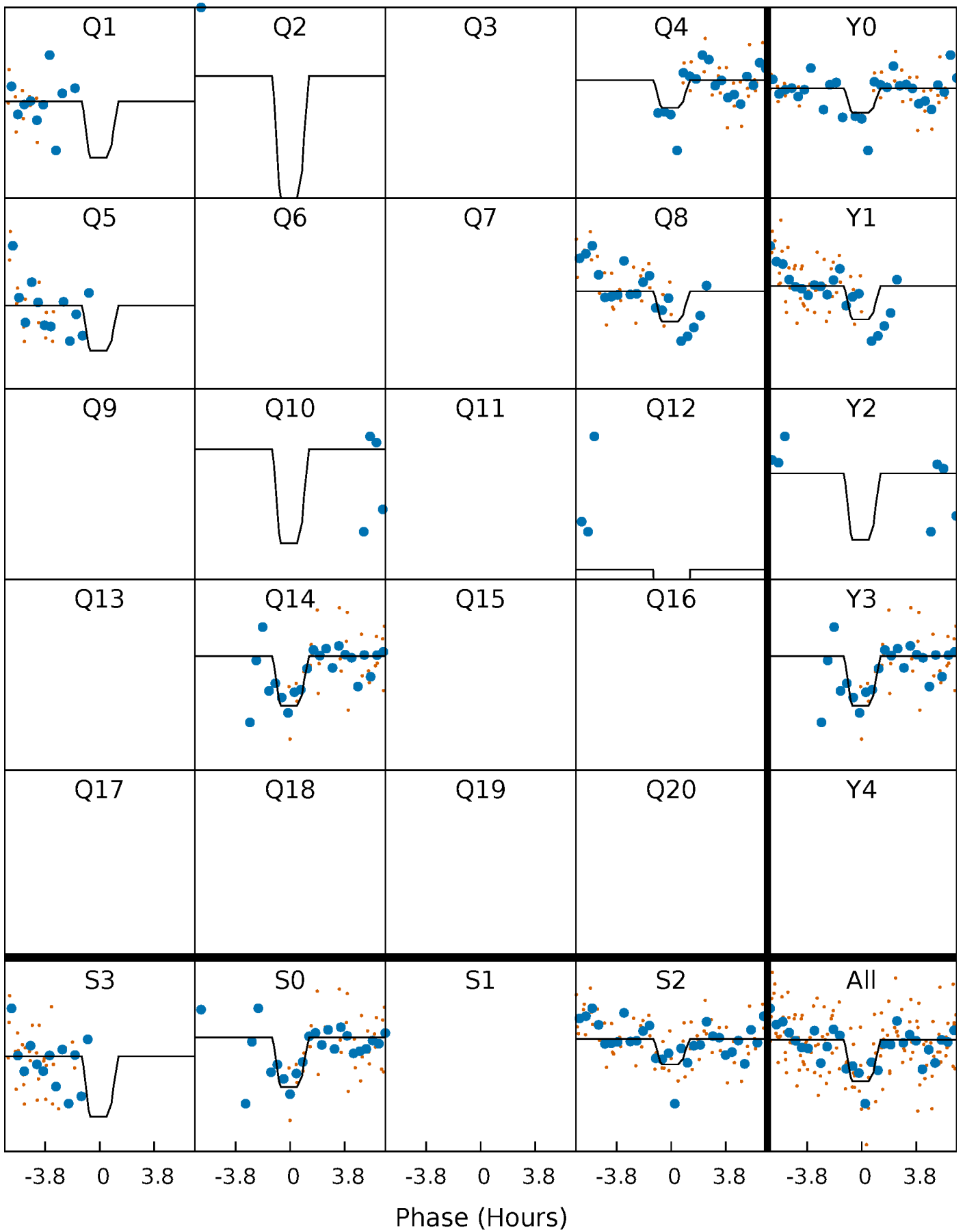
DV Quarter-Phased Transit Curves

TCE 010620386-08 P= 16.002501 Days $T_0=147.312204$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

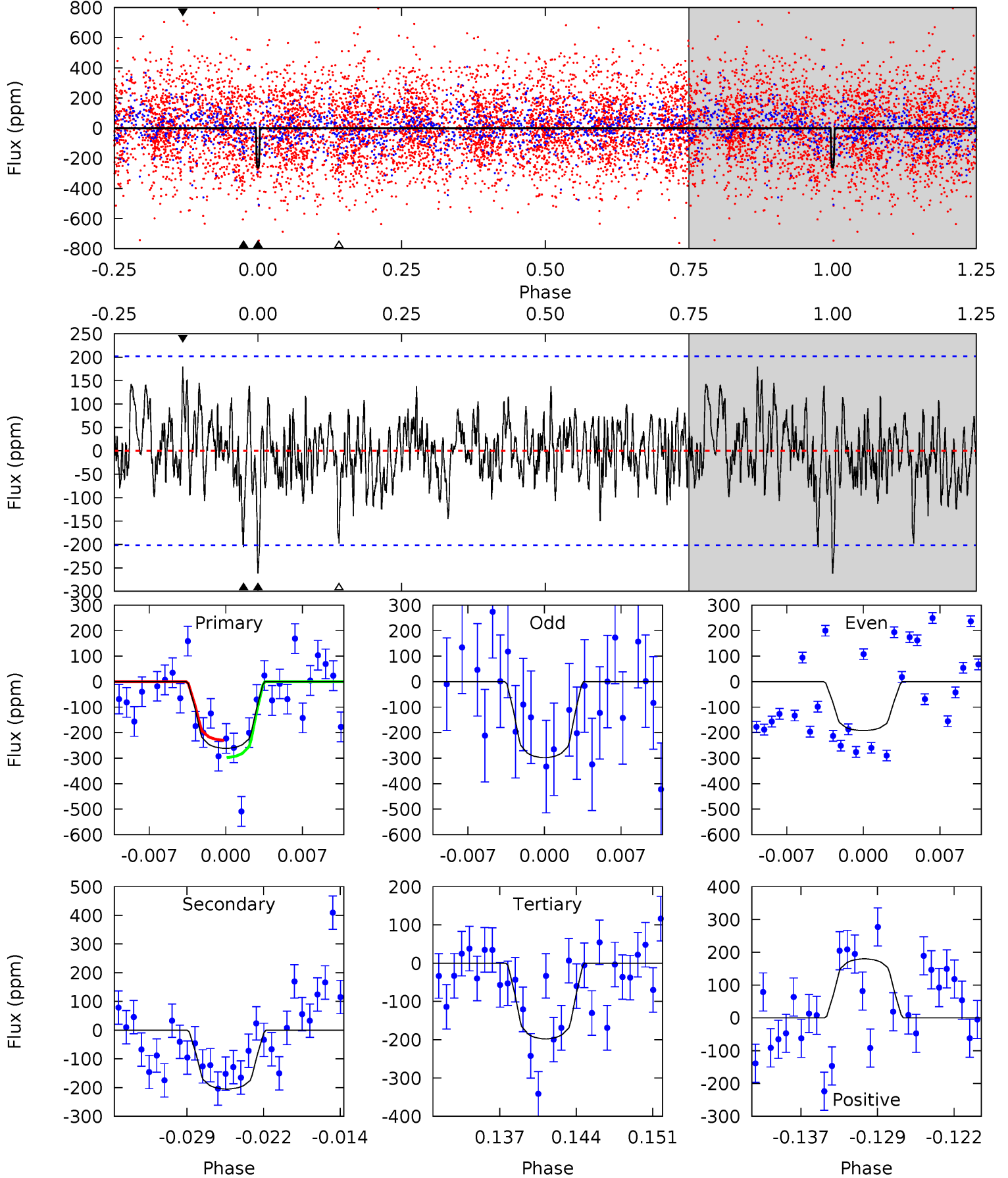
TCE 010620386-08 P= 16.002303 Days $T_0=147.324904$ (BKJD)



DV Model-Shift Uniqueness Test

010620386-08, P = 16.002501 Days, E = 131.309703 Days

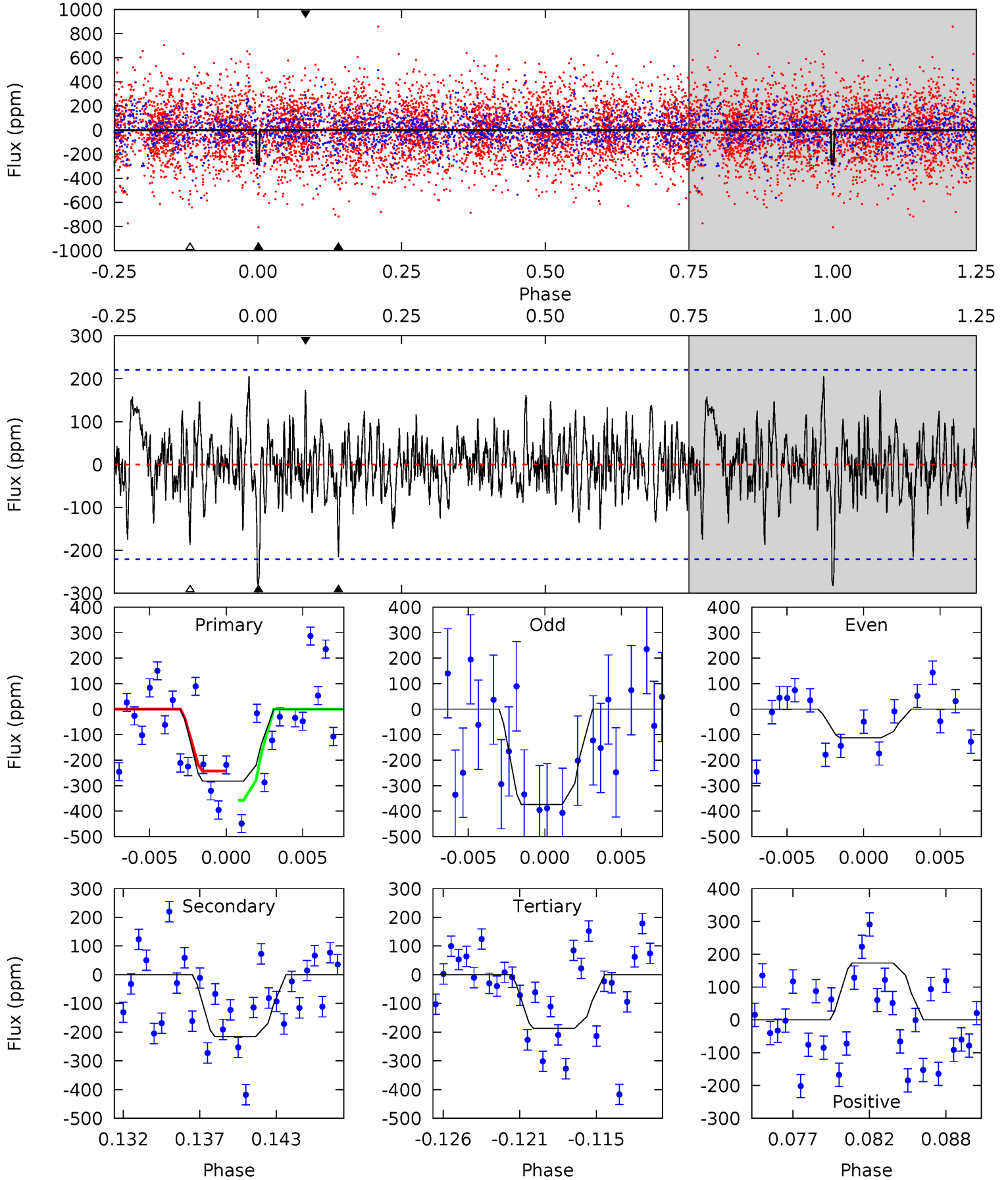
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.60	5.17	4.99	4.54	5.09	2.69	1.34	1.61	2.06	0.18	0.64	1.30	0.72	0.41	0.85



Alt Model-Shift Uniqueness Test

010620386-08, P = 16.002303 Days, E = 131.322601 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.58	5.02	4.36	4.04	5.14	2.78	1.27	2.22	2.54	0.66	0.98	2.99	0.82	0.42	1.29



Stellar Parameters For KIC 010620386

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6760^{+189}_{-236}	$4.187^{+0.158}_{-0.175}$	$-0.340^{+0.250}_{-0.300}$	$1.482^{+0.410}_{-0.336}$	$1.237^{+0.170}_{-0.208}$	$0.536^{+0.500}_{-0.263}$
	+3%/-3%	+4%/-4%	+74%/-88%	+28%/-23%	+14%/-17%	+93%/-49%
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 010620386-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-205 ± 40	$4.10^{+3.41}_{-2.68}$	1397^{+106}_{-93}	5121^{+3940}_{-1057}	117^{+804}_{-83}
Alt.	-216 ± 43	$4.06^{+3.70}_{-2.73}$	1394^{+96}_{-91}	5198^{+4485}_{-1165}	126^{+1118}_{-93}

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

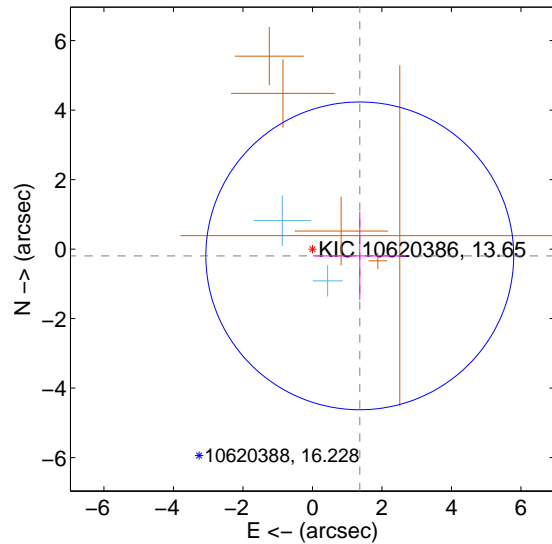
Supplemental centroid analysis for 010620386-08. Kepler magnitude: 13.65. Transit SNR 8.57

There are 2 quarters with good PRF difference image offsets

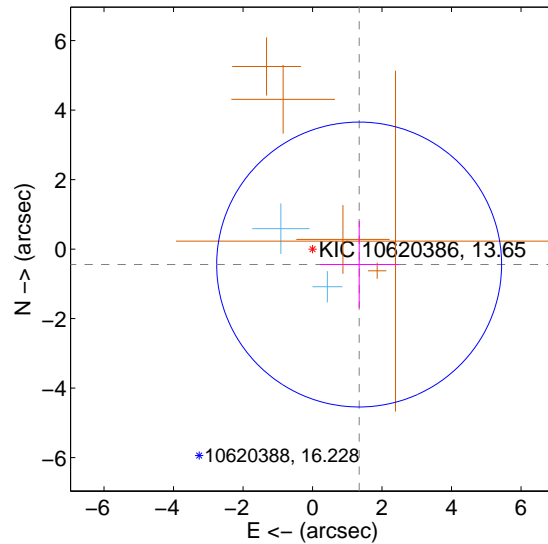
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.375 ± 1.476	0.93	-1.361 ± 1.342	-0.195 ± 1.266
PRF-fit source offset from KIC position	1.413 ± 1.366	1.03	-1.341 ± 1.128	-0.444 ± 1.245
photometric centroid source offset	0.84 ± 0.58	1.44	-0.14 ± 0.56	-0.83 ± 0.58

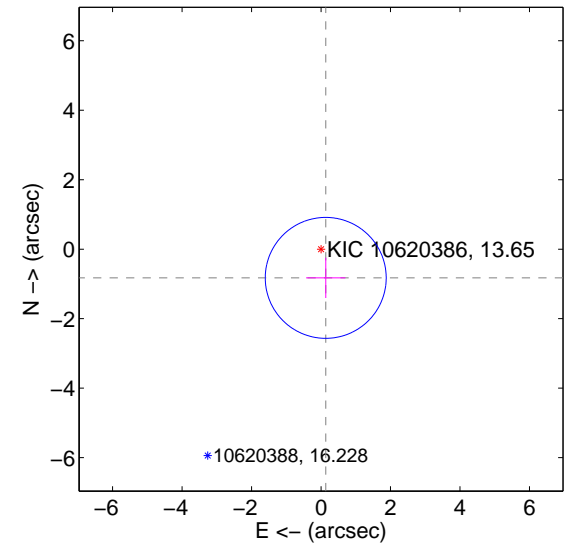
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

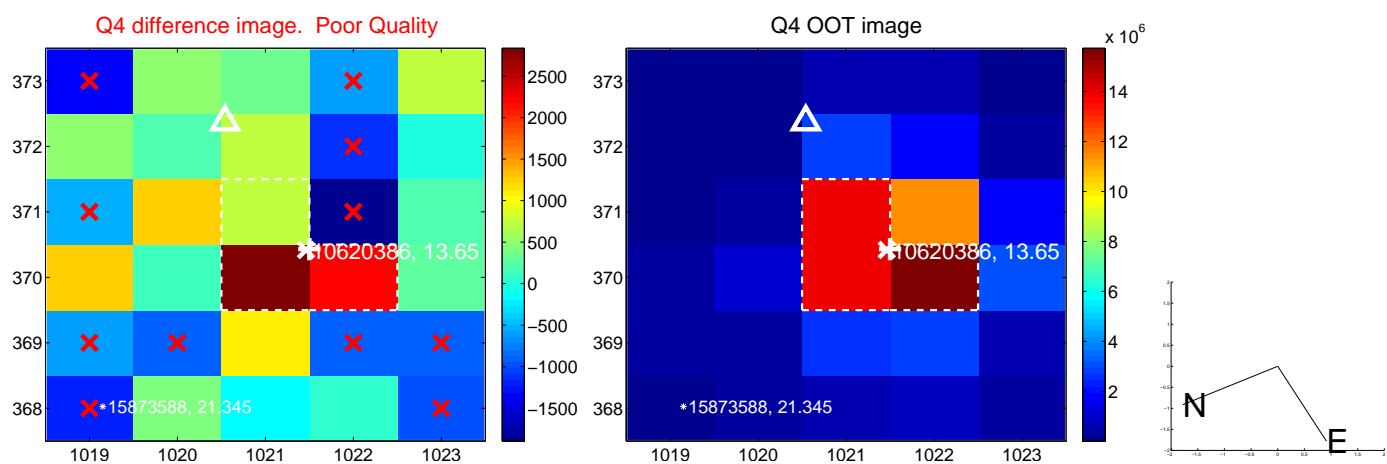
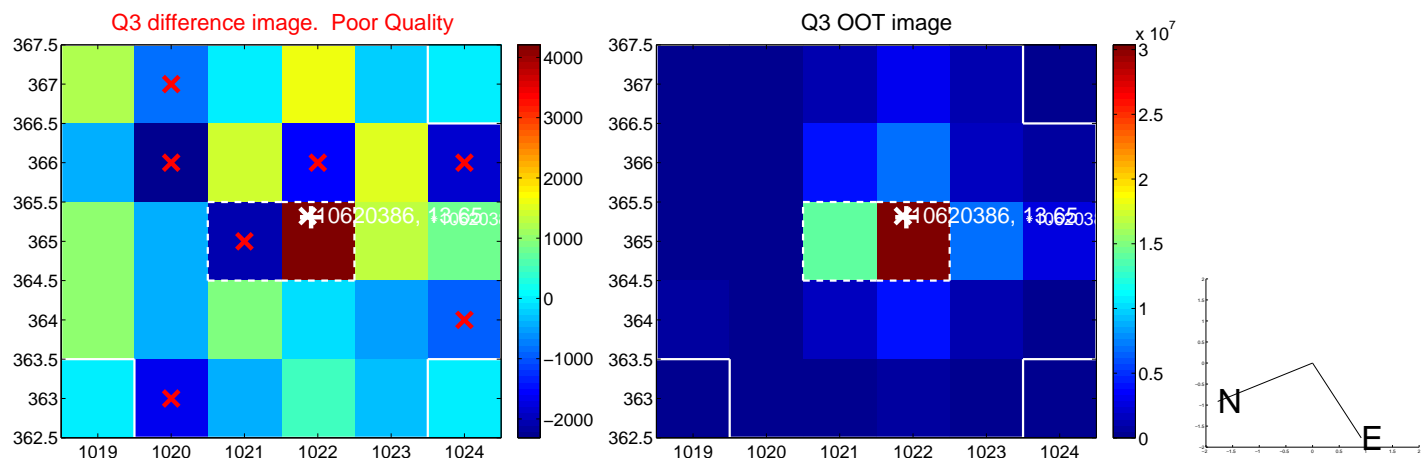
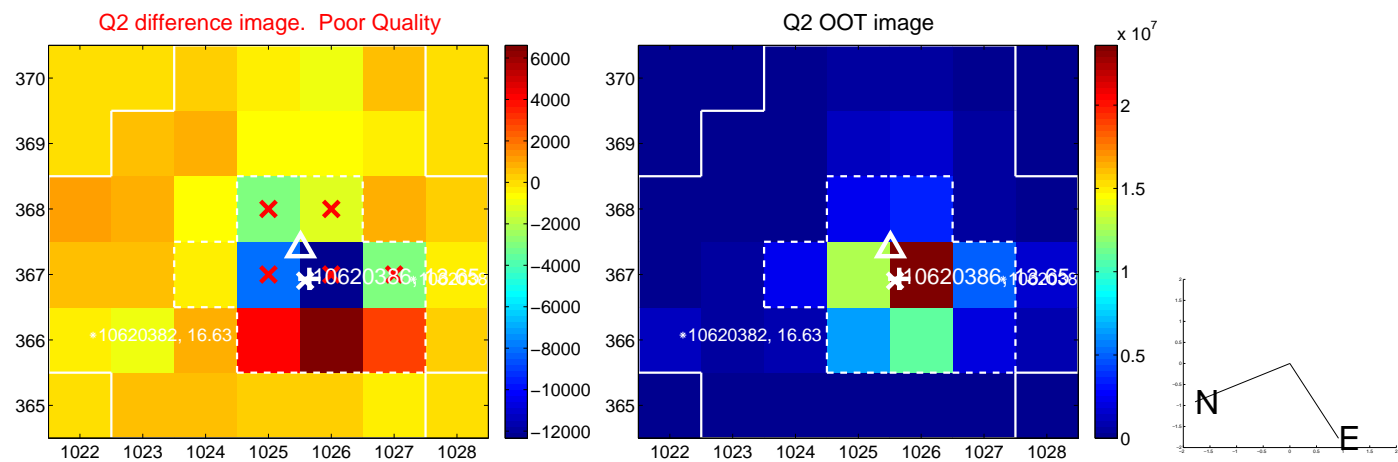
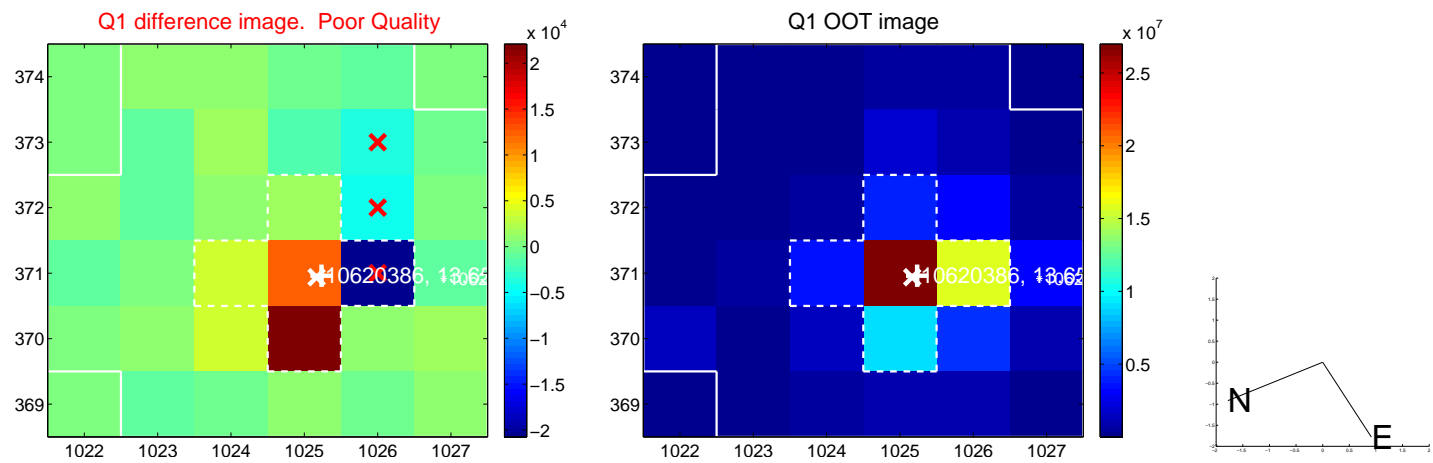


offset from photometric centroids

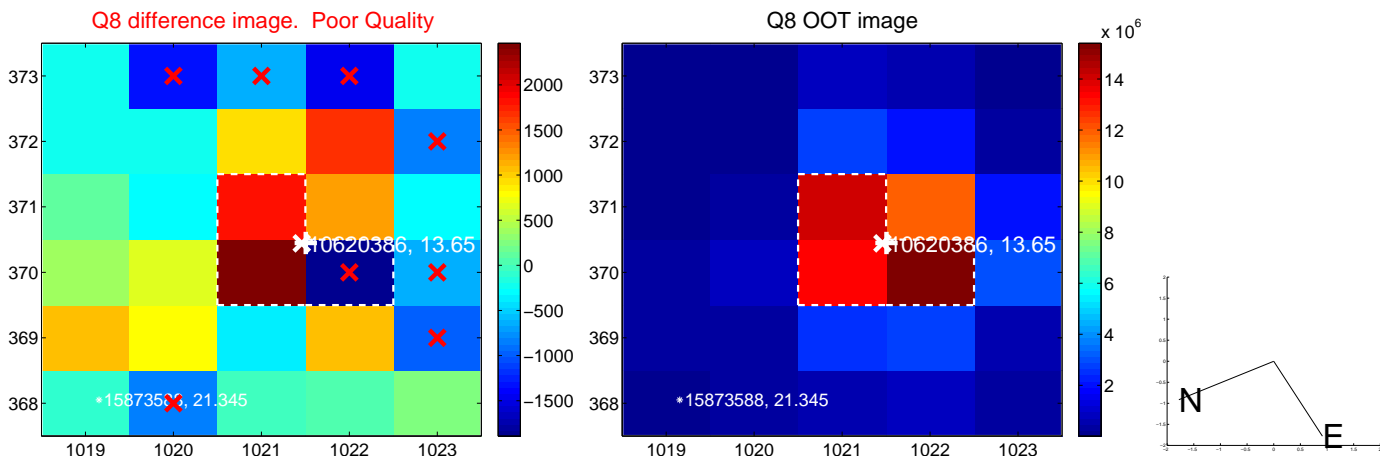
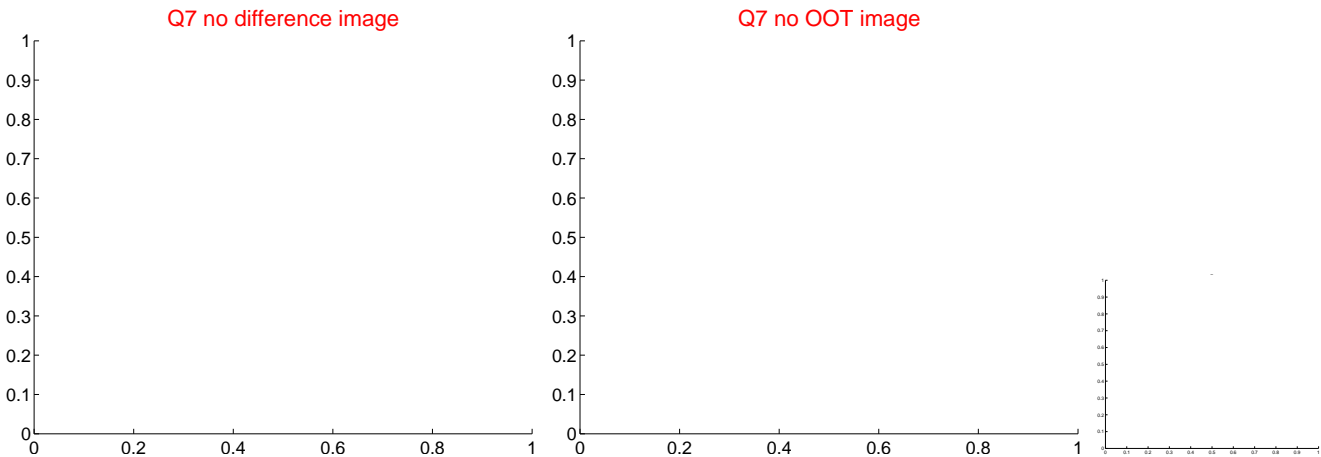
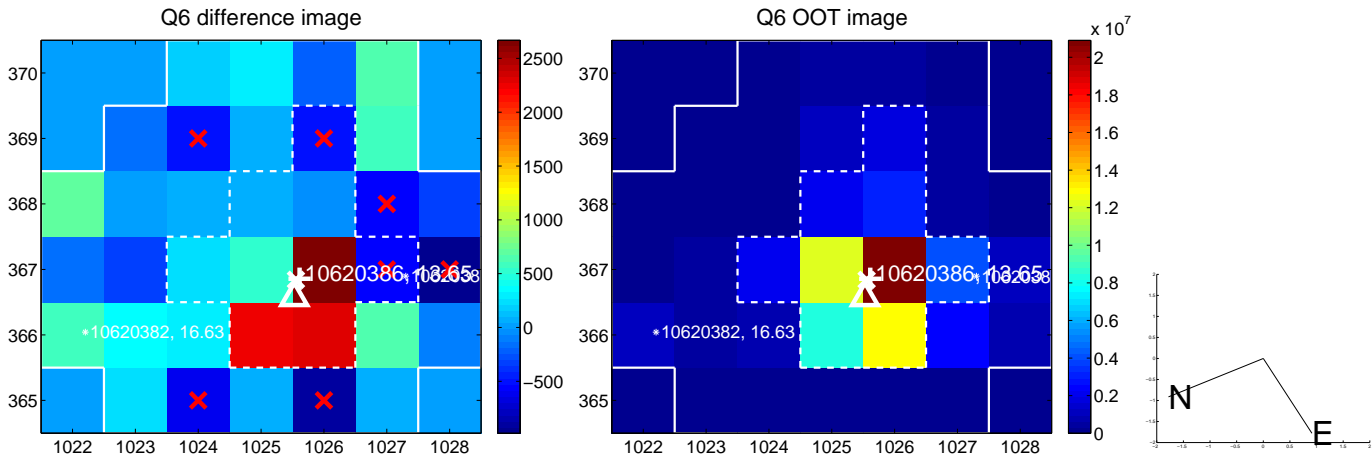
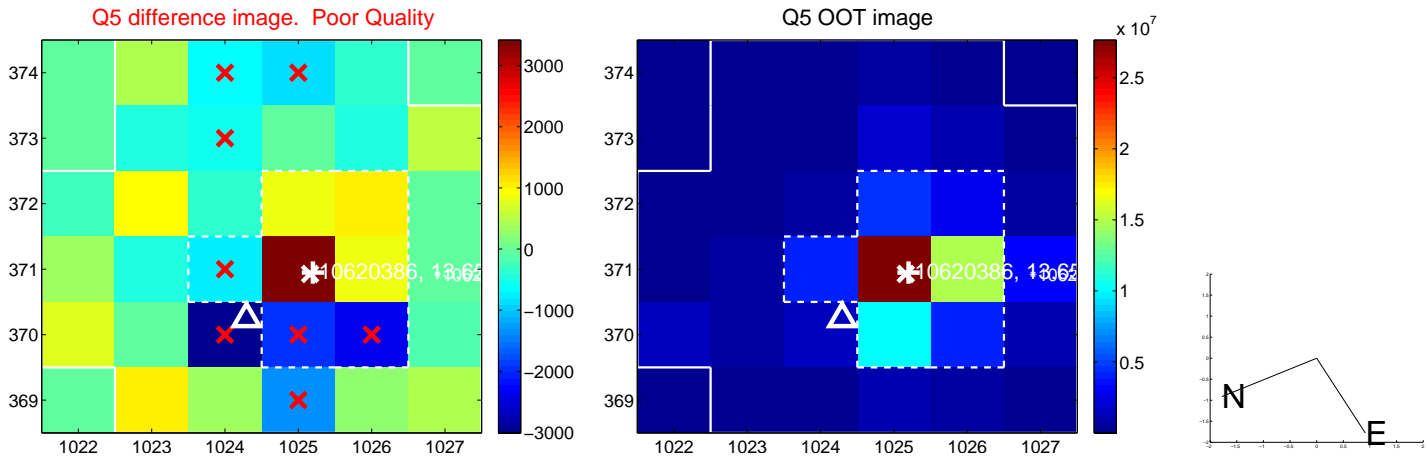


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

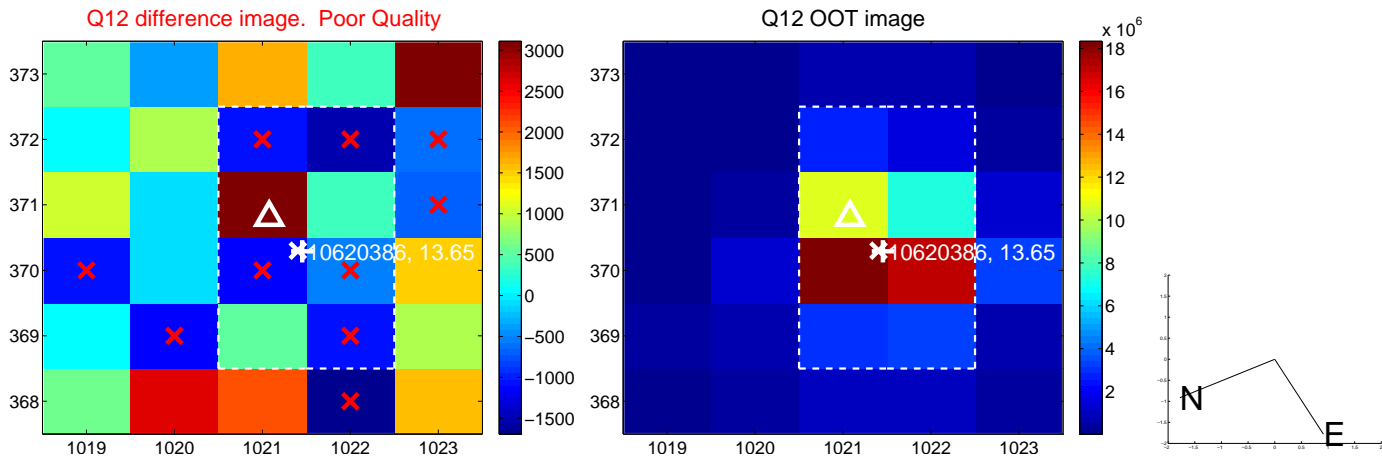
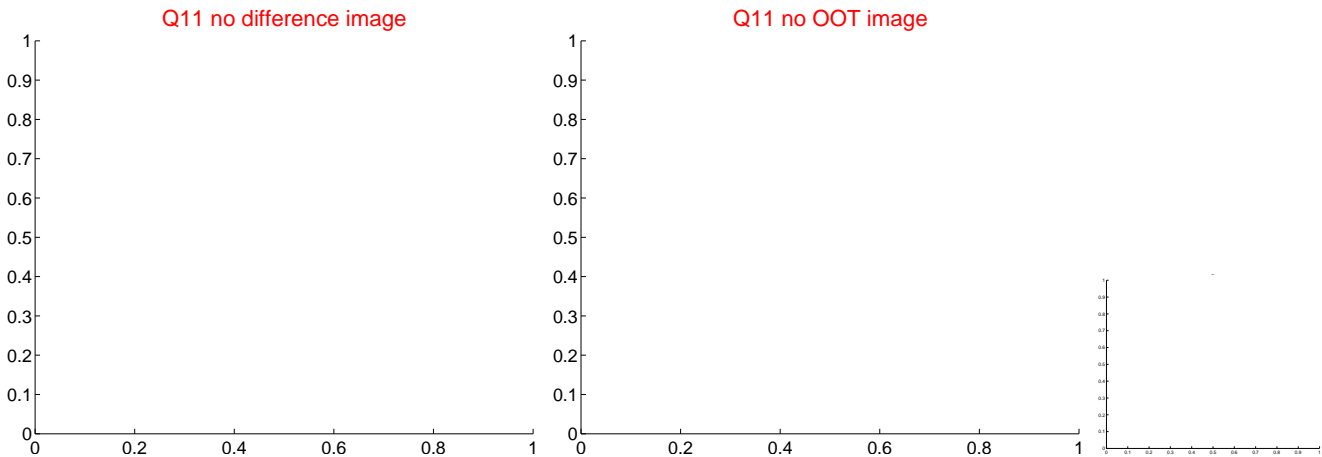
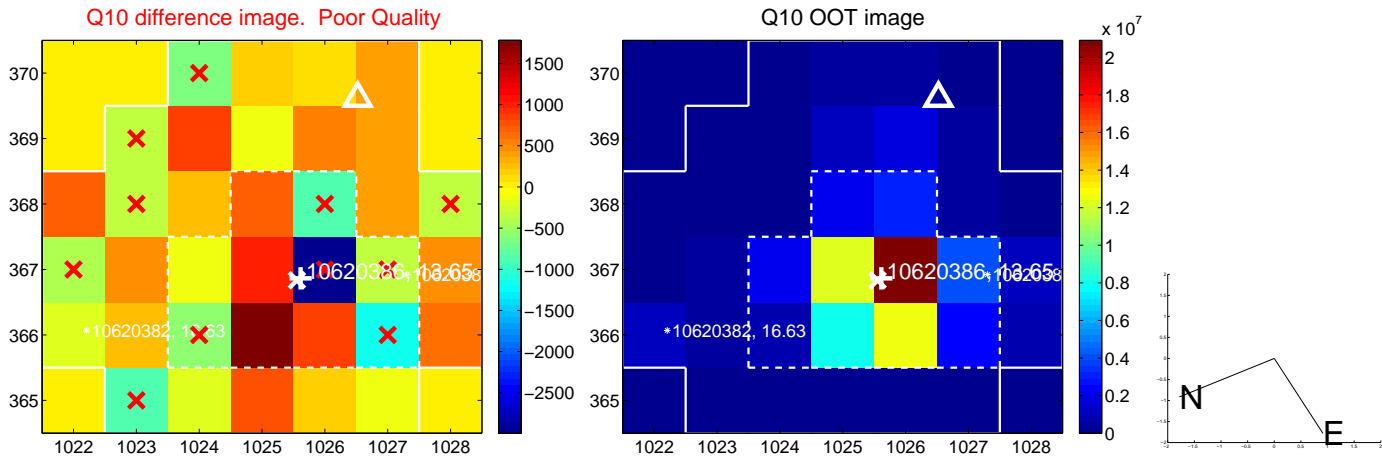
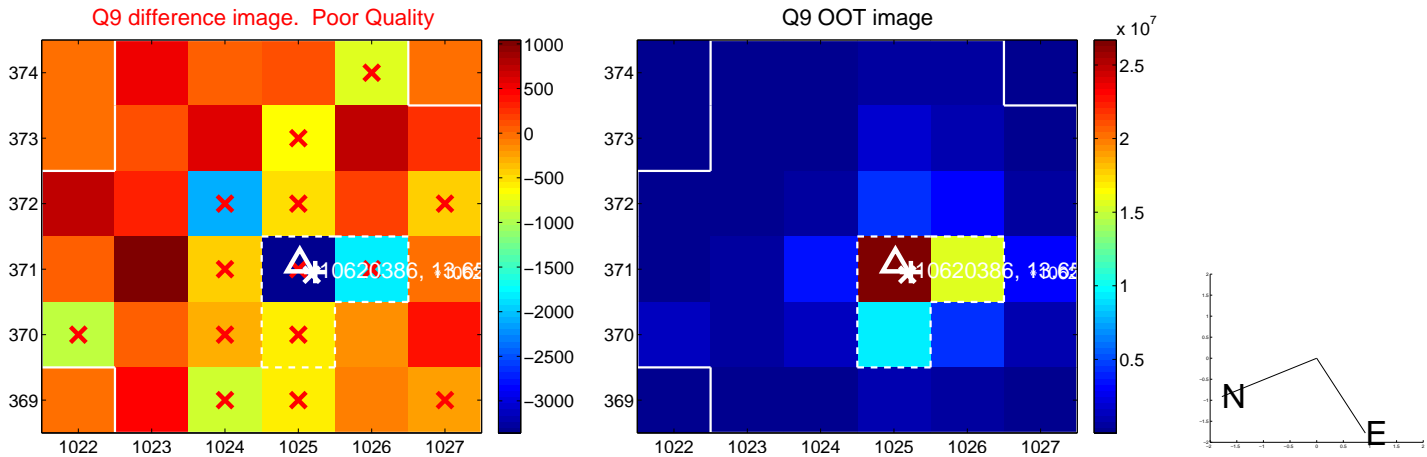
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



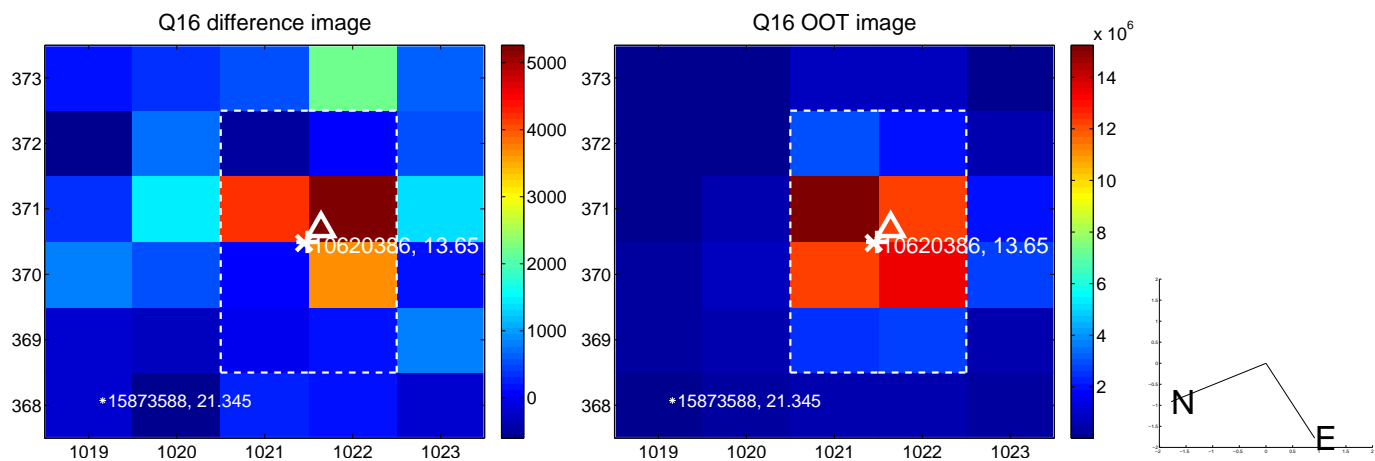
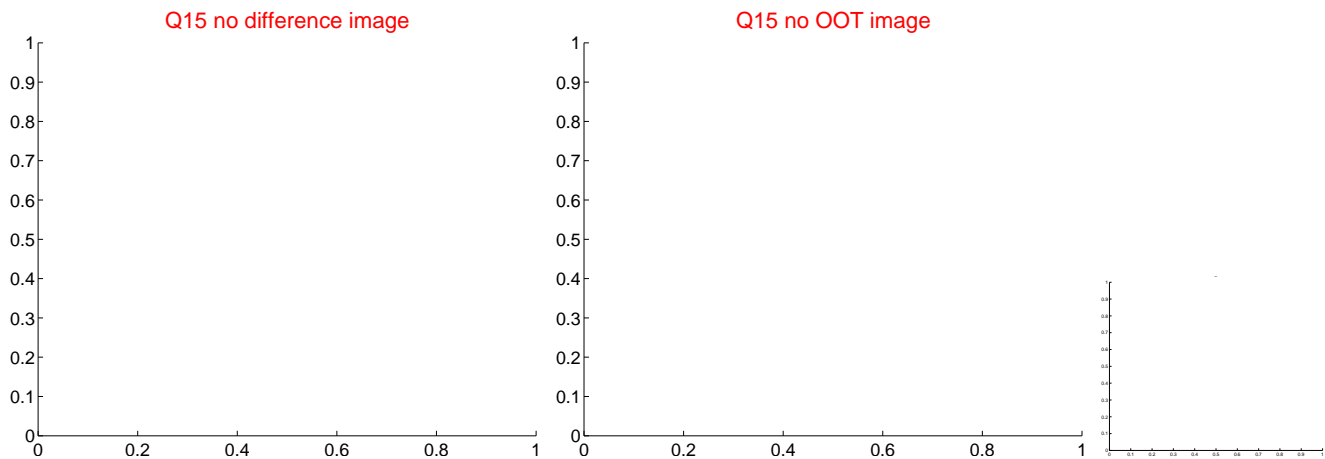
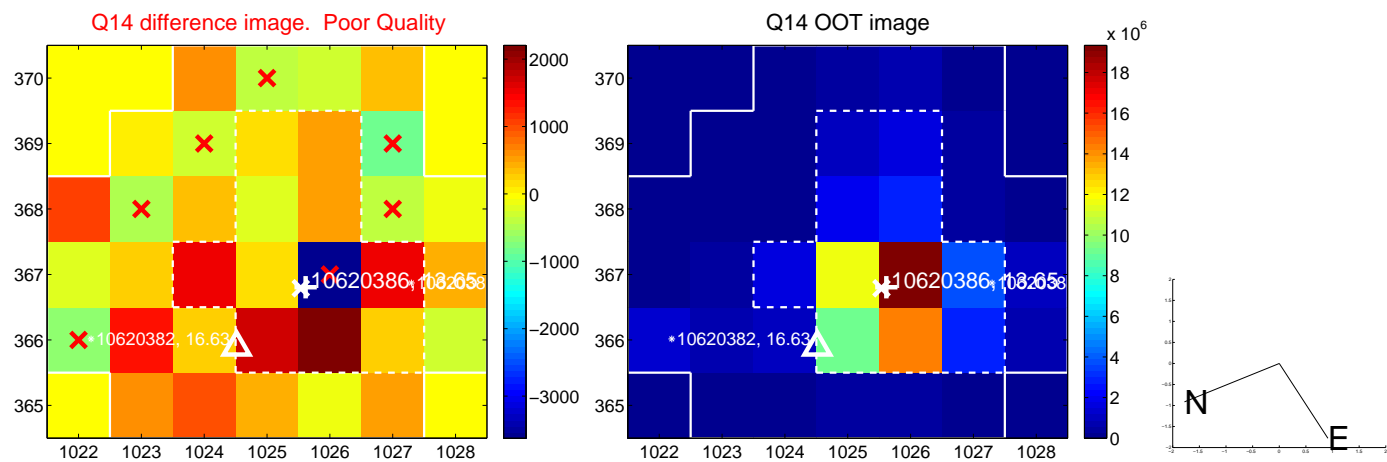
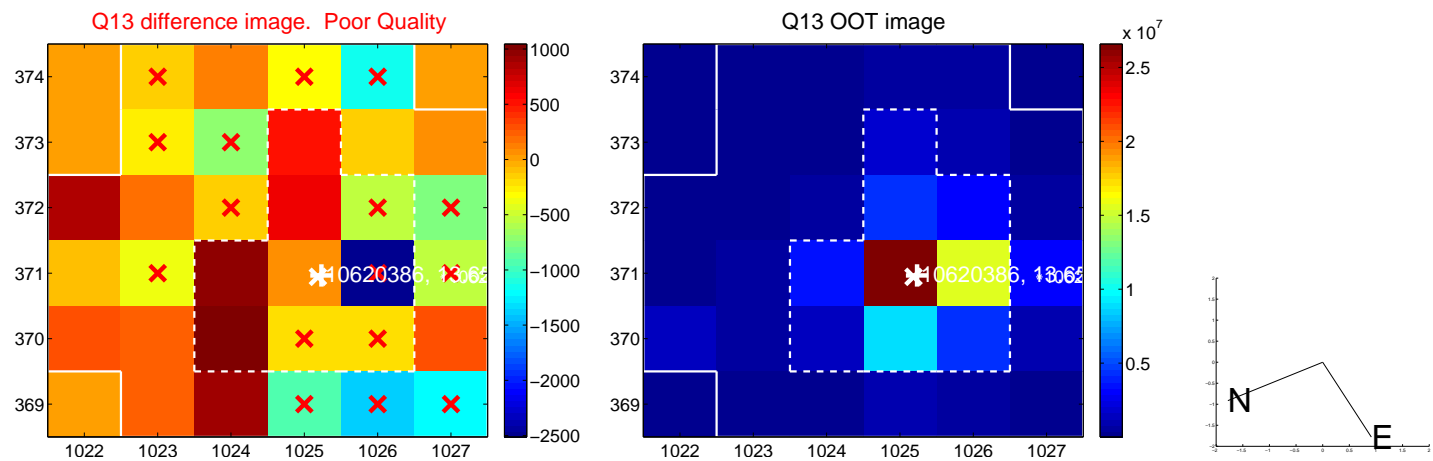
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



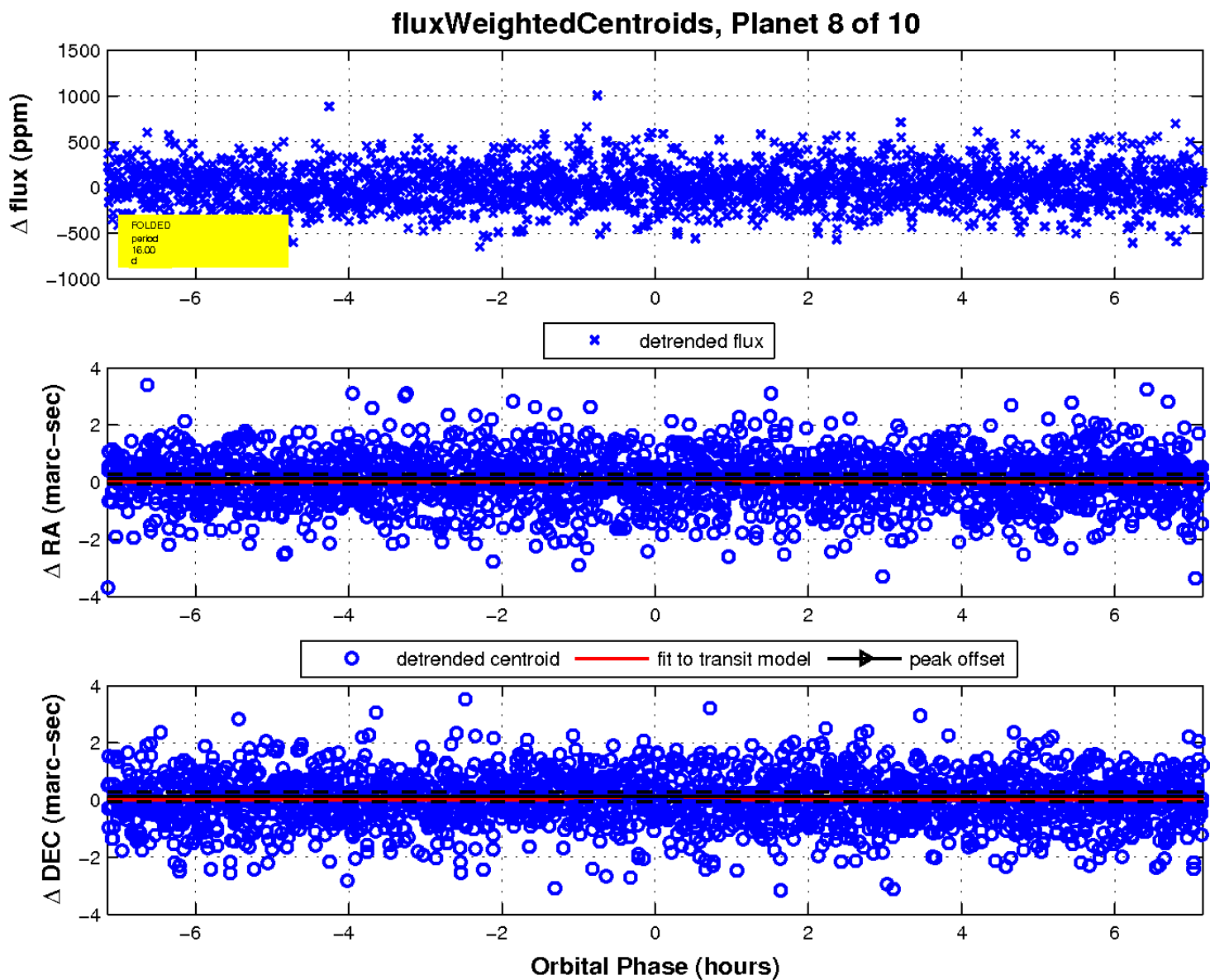
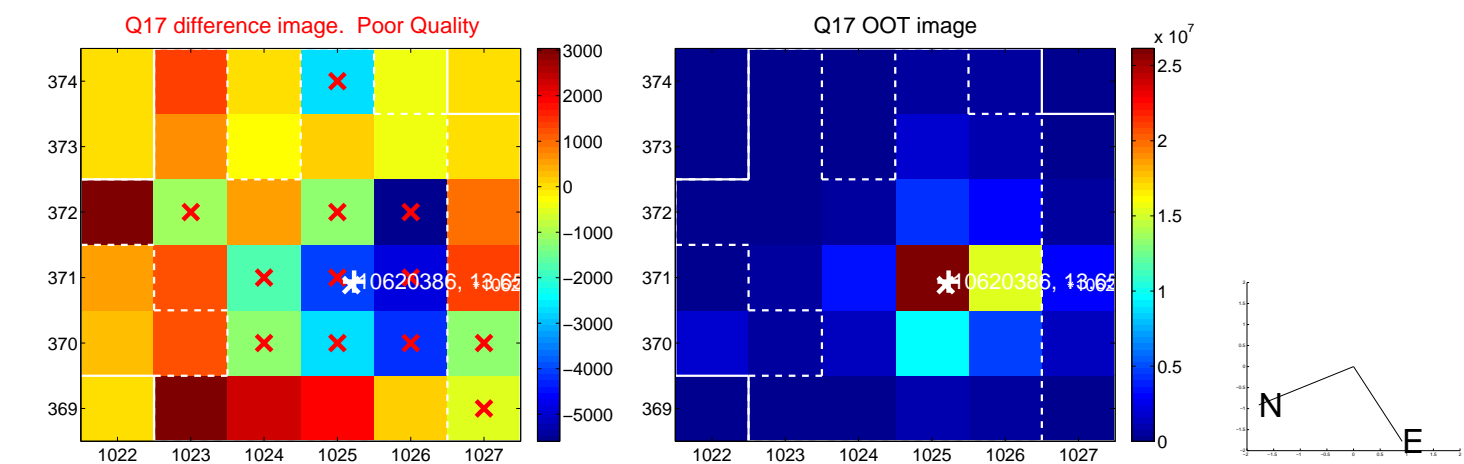
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

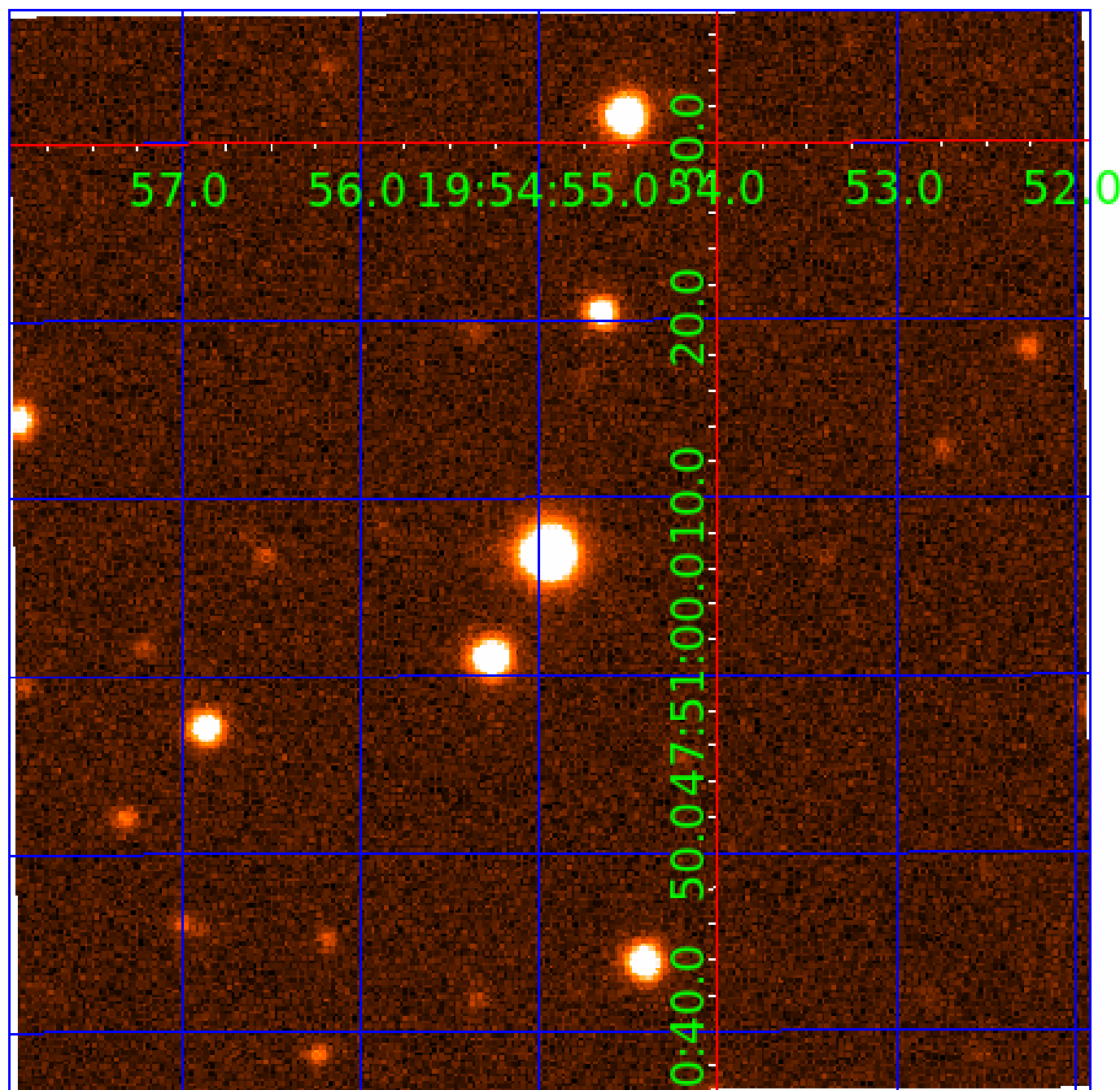


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010620386

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})
010620386-01	OBS	No	1.767922	132.121428	5.8	12.225	7.9	2.4	1.48	6760	0.38	4364.78
010620386-02	OBS	No	44.080619	166.027943	343.6	2.145	12.5	11.5	1.48	6760	2.95	59.92
010620386-03	OBS	No	48.202635	163.525750	465.8	2.026	11.2	9.4	1.48	6760	3.40	53.19
010620386-04	OBS	No	22.111977	133.011494	313.4	2.066	11.3	10.7	1.48	6760	2.94	150.34
010620386-05	OBS	No	157.912847	247.435004	263.1	5.144	9.8	9.7	1.48	6760	2.71	10.93
010620386-06	OBS	No	282.834750	152.515978	274.3	3.433	8.8	9.1	1.48	6760	2.72	5.03
010620386-07	OBS	No	18.357959	145.864348	253.8	2.290	10.9	10.9	1.48	6760	2.41	192.67
010620386-08	OBS	No	16.002501	147.312204	275.0	2.385	9.2	8.6	1.48	6760	2.77	231.38
010620386-09	OBS	No	35.872668	147.147565	262.3	3.732	8.5	8.7	1.48	6760	2.65	78.87
010620386-10	OBS	No	23.456372	140.582661	266.4	2.684	8.4	7.5	1.48	6760	2.82	138.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010620386-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010620386-09	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
010620386-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

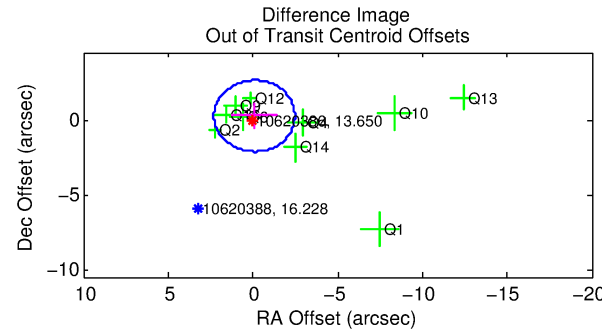
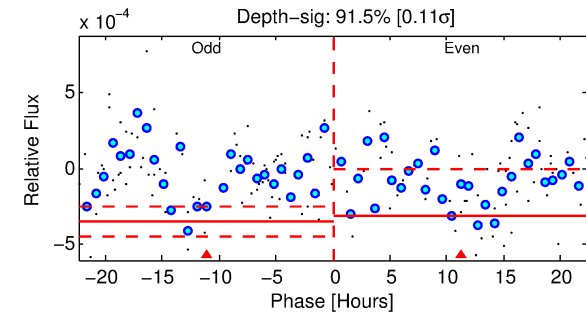
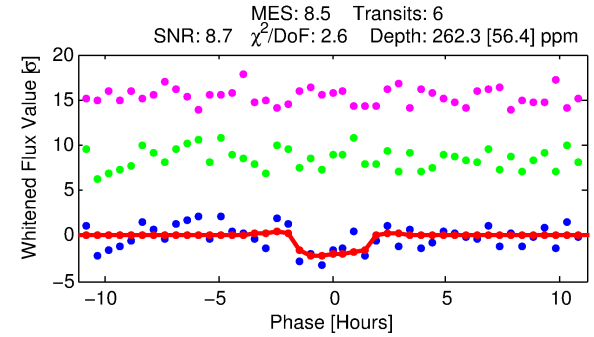
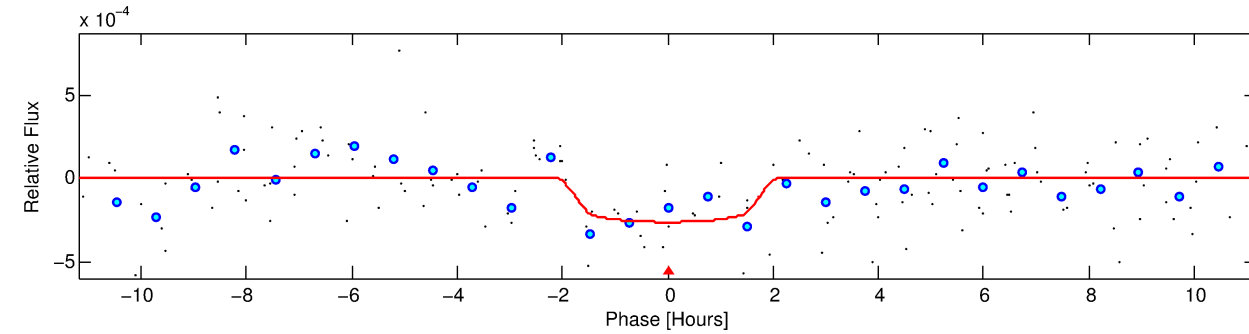
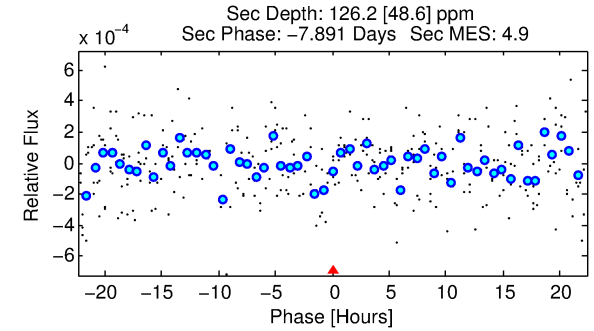
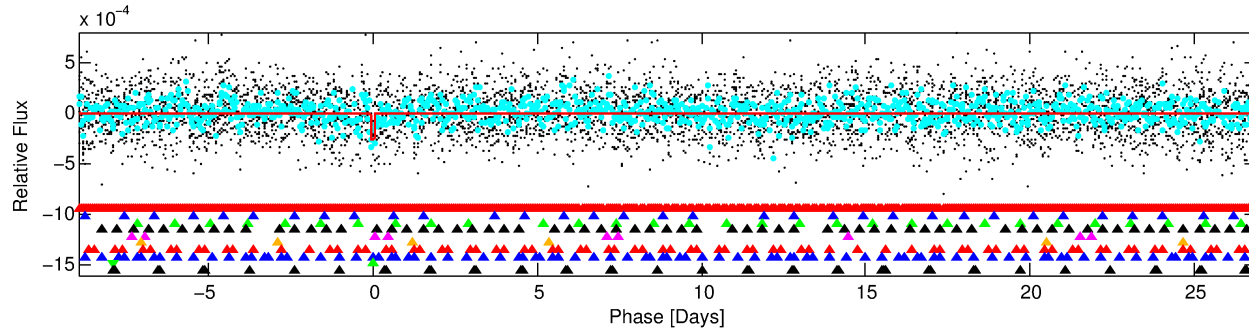
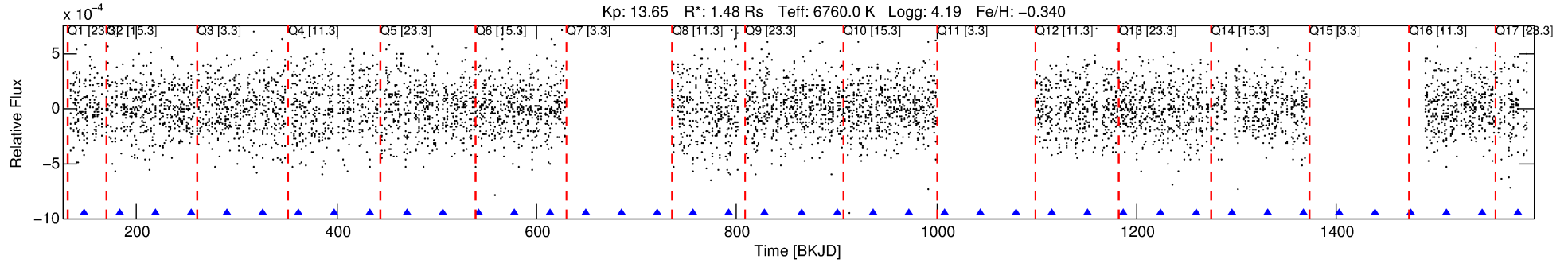
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010620386-09

No Significant Match Found

DV One-Page Summary

KIC: 10620386 Candidate: 9 of 10 Period: 35.873 d



DV Fit Results:

Period = 35.87267 [0.00062] d
Epoch = 147.1476 [0.0142] BKJD
Rp/R* = 0.0164 [0.0130]
a/R* = 45.77 [204.63]
b = 0.80 [2.01]
Seff = 78.87 [27.96]
Teq = 760 [67] K
Rp = 2.65 [2.23] Re
a = 0.2283 [0.0521] AU
Ag = 514.31 [857.08] [0.60σ]
Teffp = 5595 [2294] K [2.11σ]

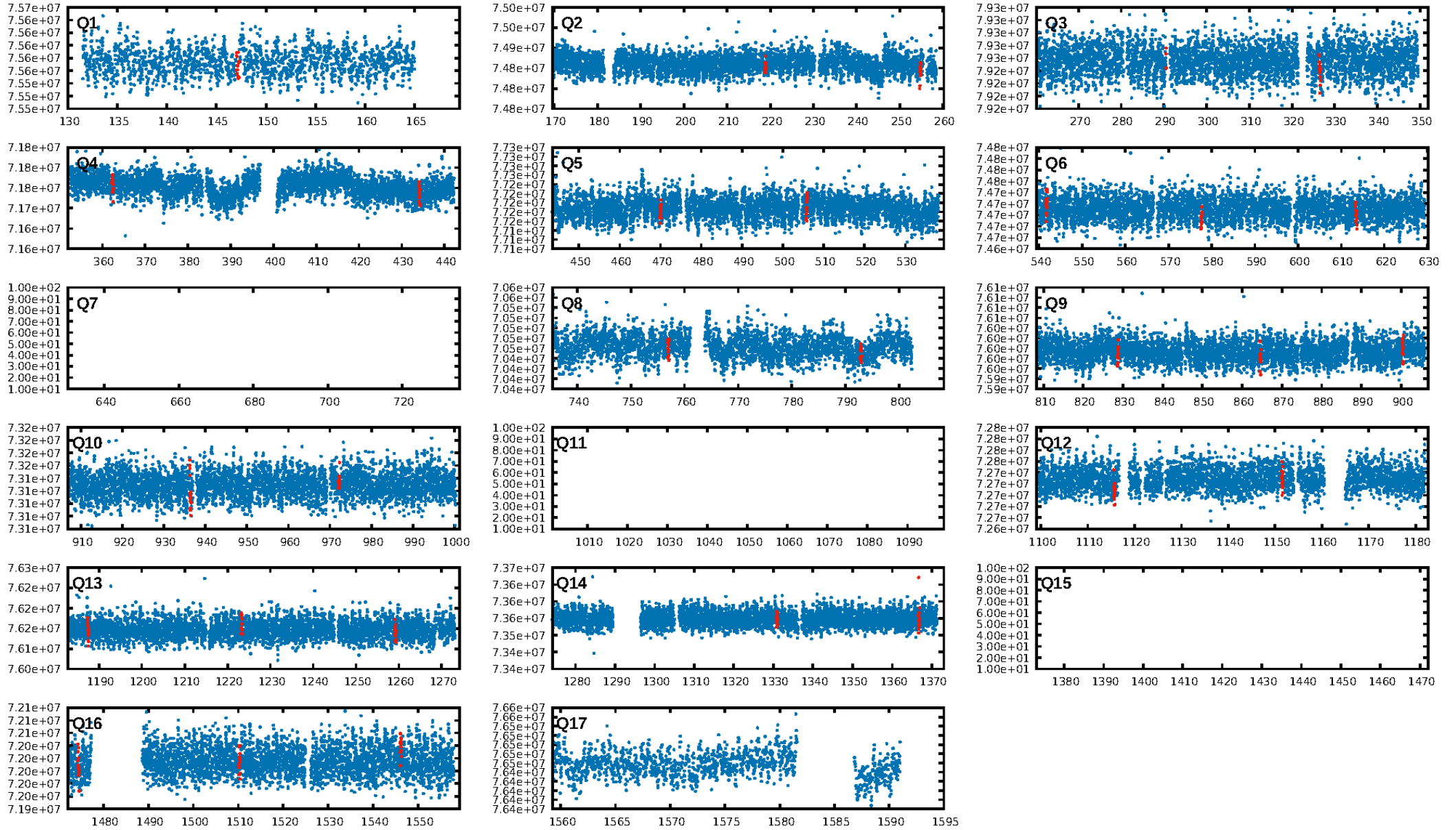
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [64.83σ]
LongPeriod-sig: 100.0% [45.76σ]
ModelChiSquare2-sig: 6.5%
ModelChiSquareGof-sig: 91.7%
Bootstrap-pfa: 6.37e-07
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.1542
Centroid-sig: 50.5%
Centroid-so: 0.837 arcsec [1.11σ]
OotOffset-rm: 0.267 arcsec [0.34σ]
KicOffset-rm: 0.055 arcsec [0.06σ]
OotOffset-st: 4/0/3/3 [10]
KicOffset-st: 4/0/3/3 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 0.54 [7/13]

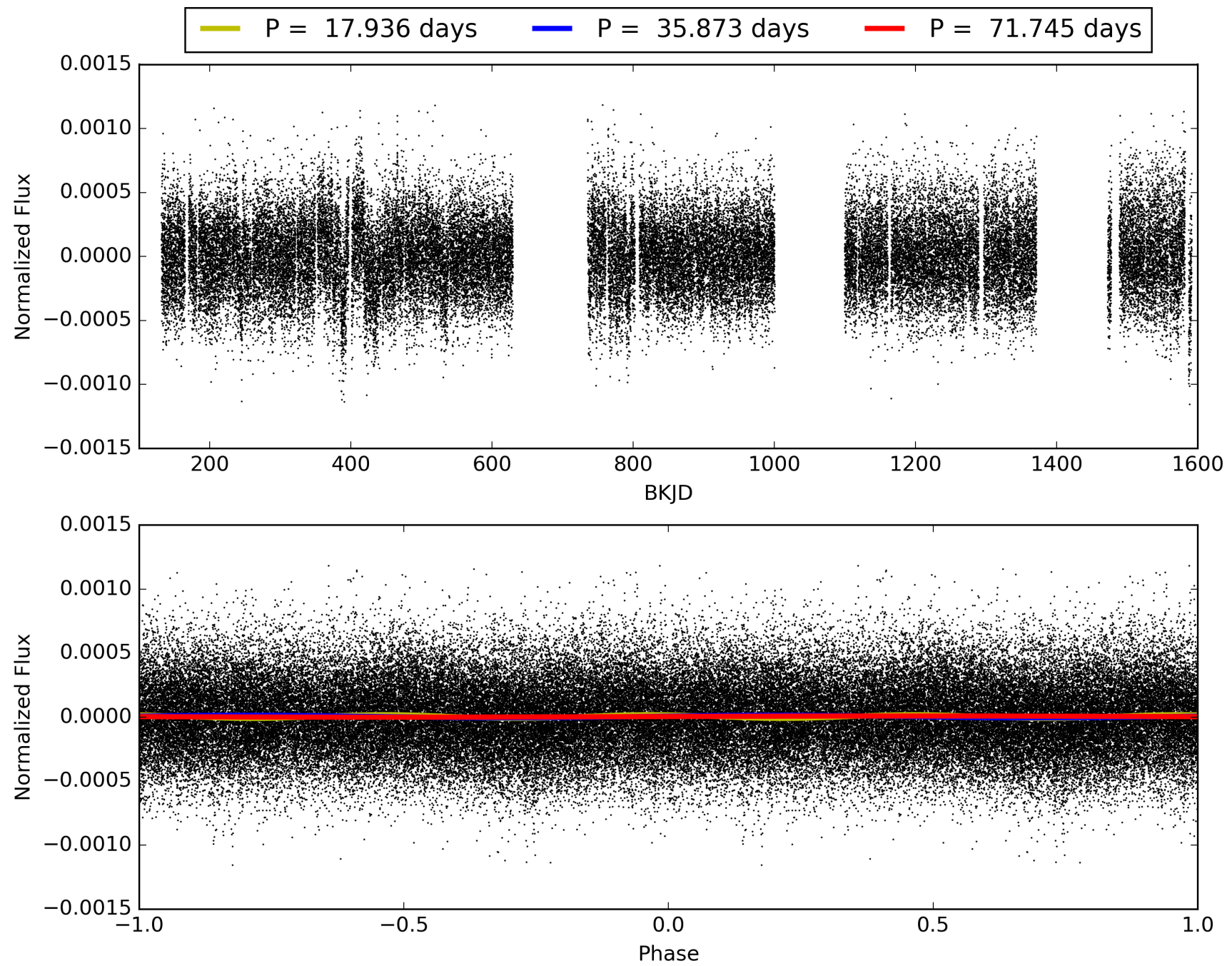
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:20:12 Z

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

TCE 010620386-09, PDC Light Curves

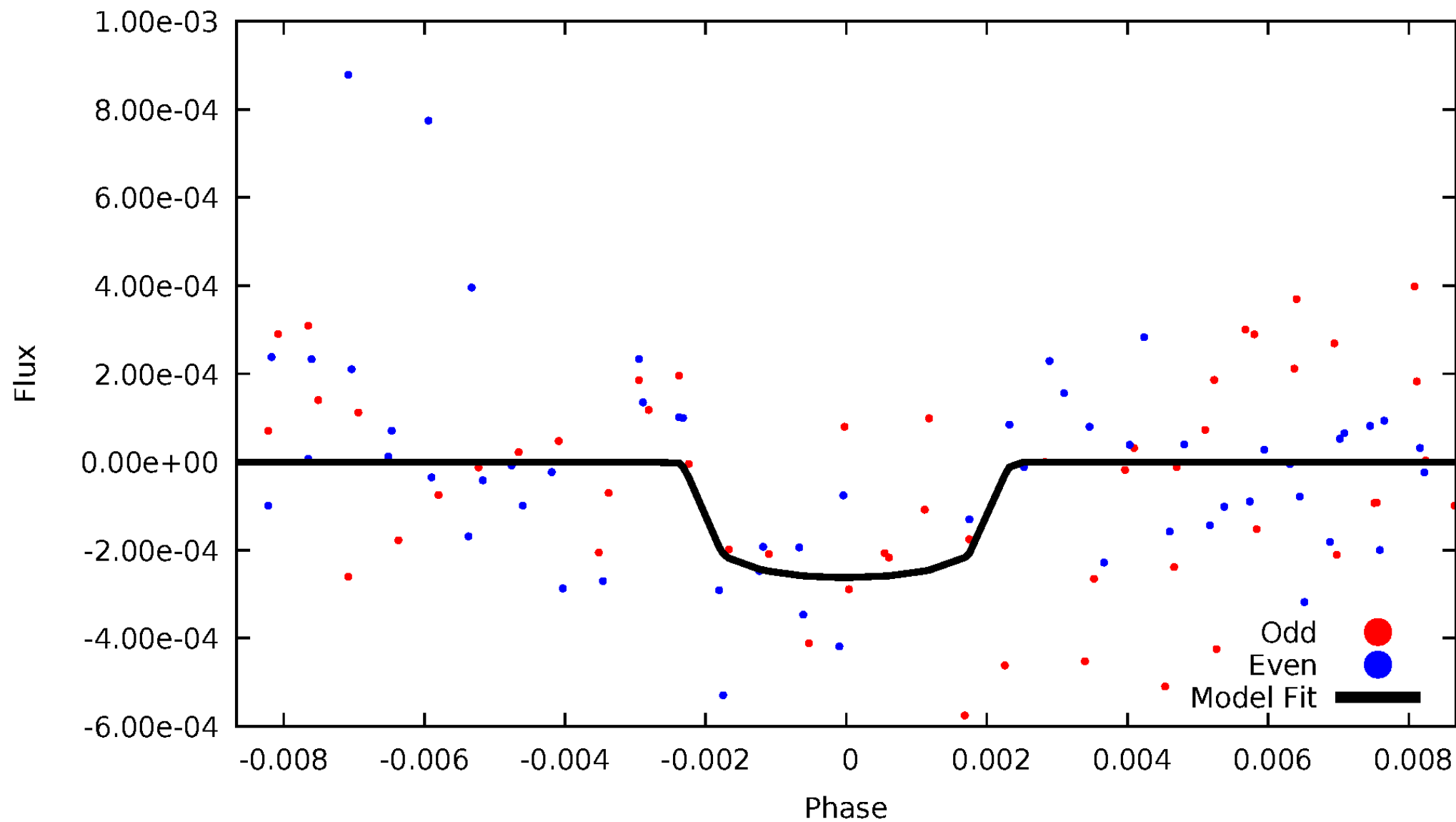


TCE 010620386-09



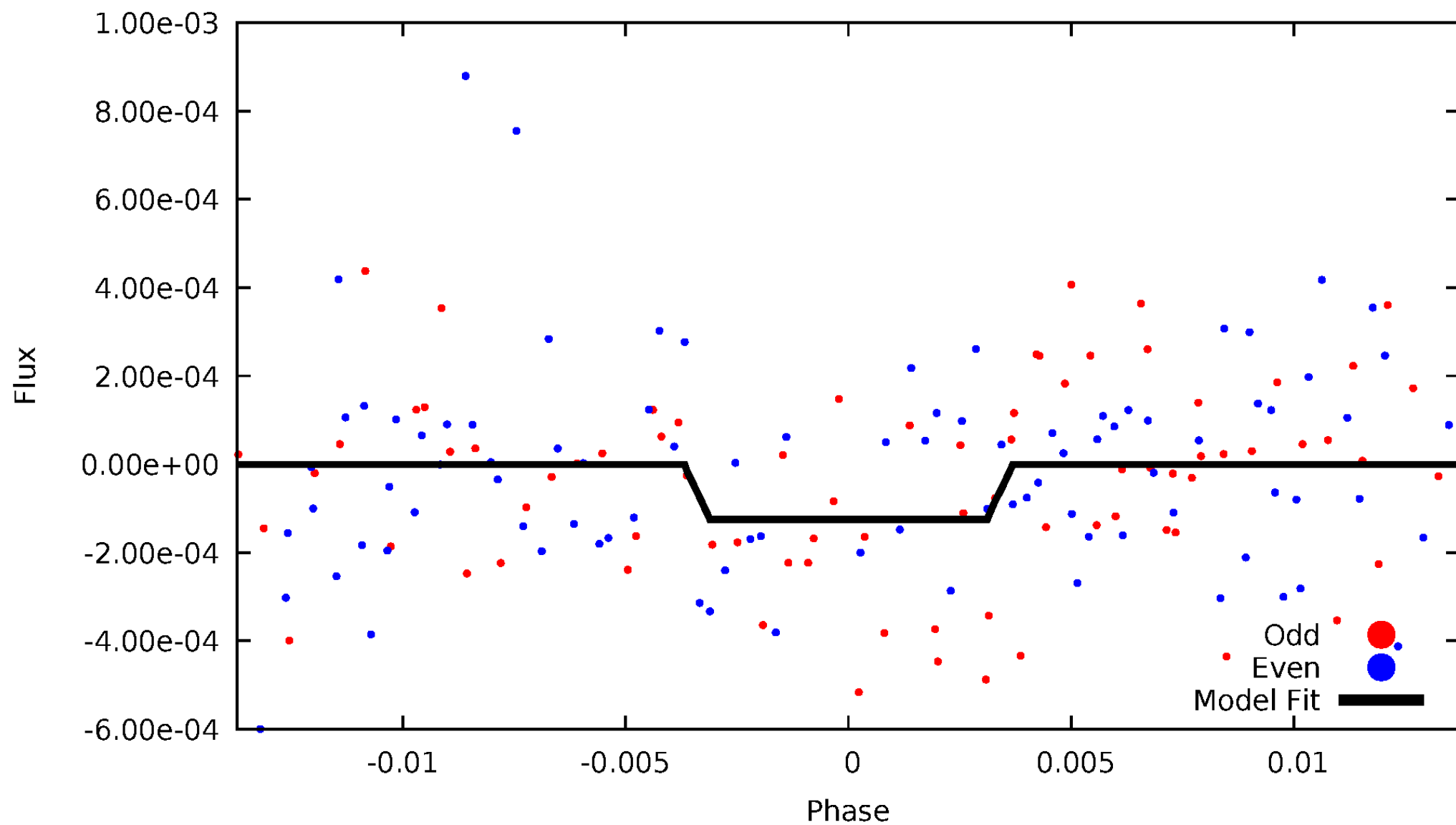
DV Odd/Even

TCE 010620386-09



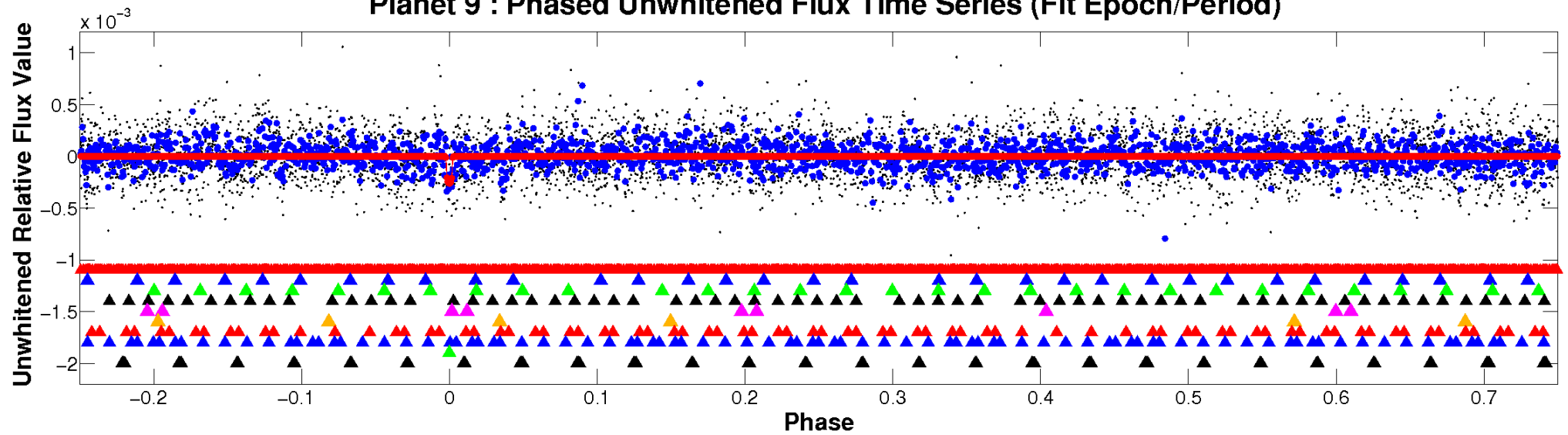
ALT Odd/Even

TCE 010620386-09

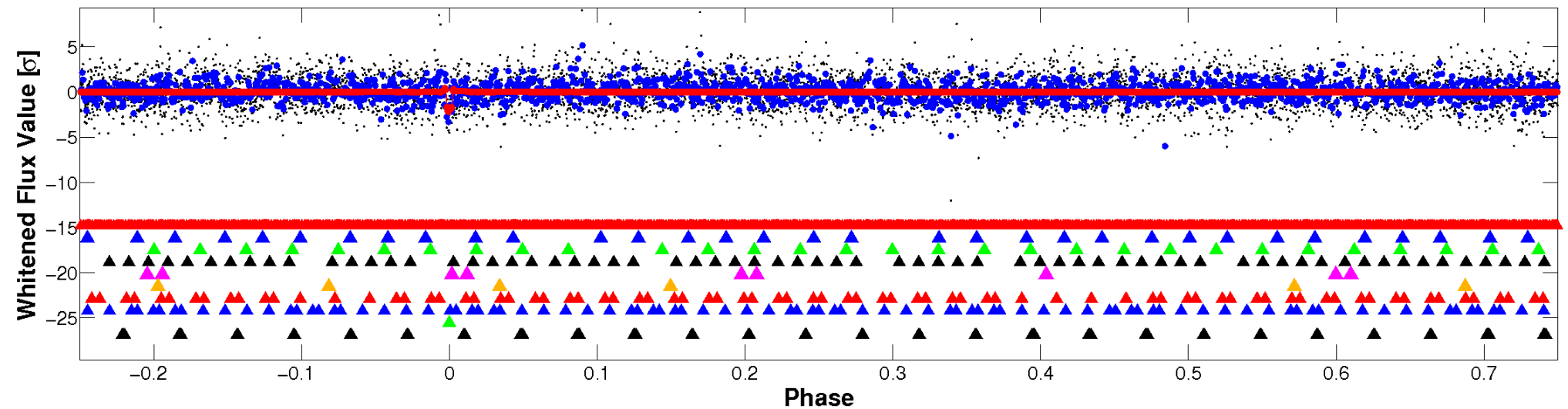


Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

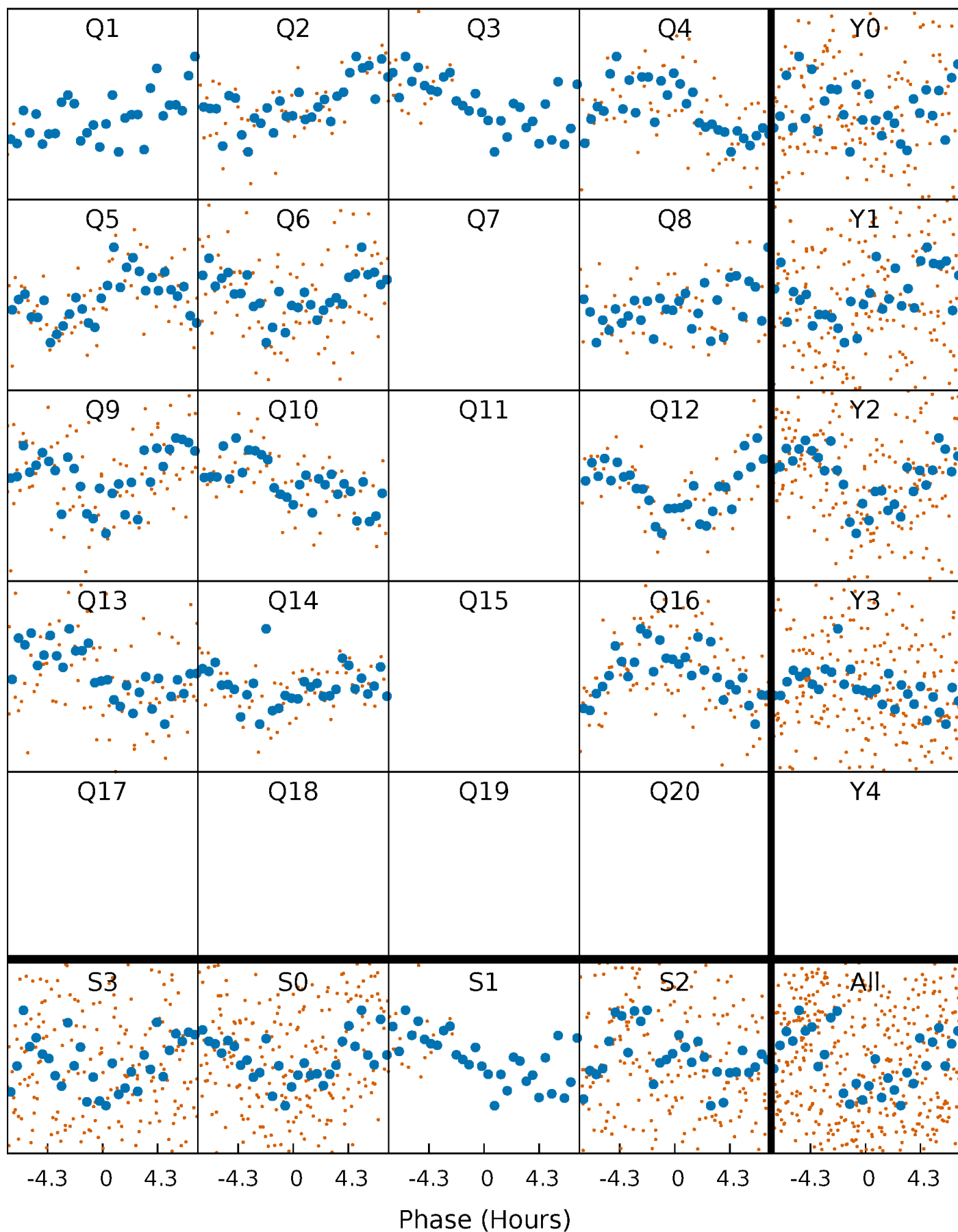


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



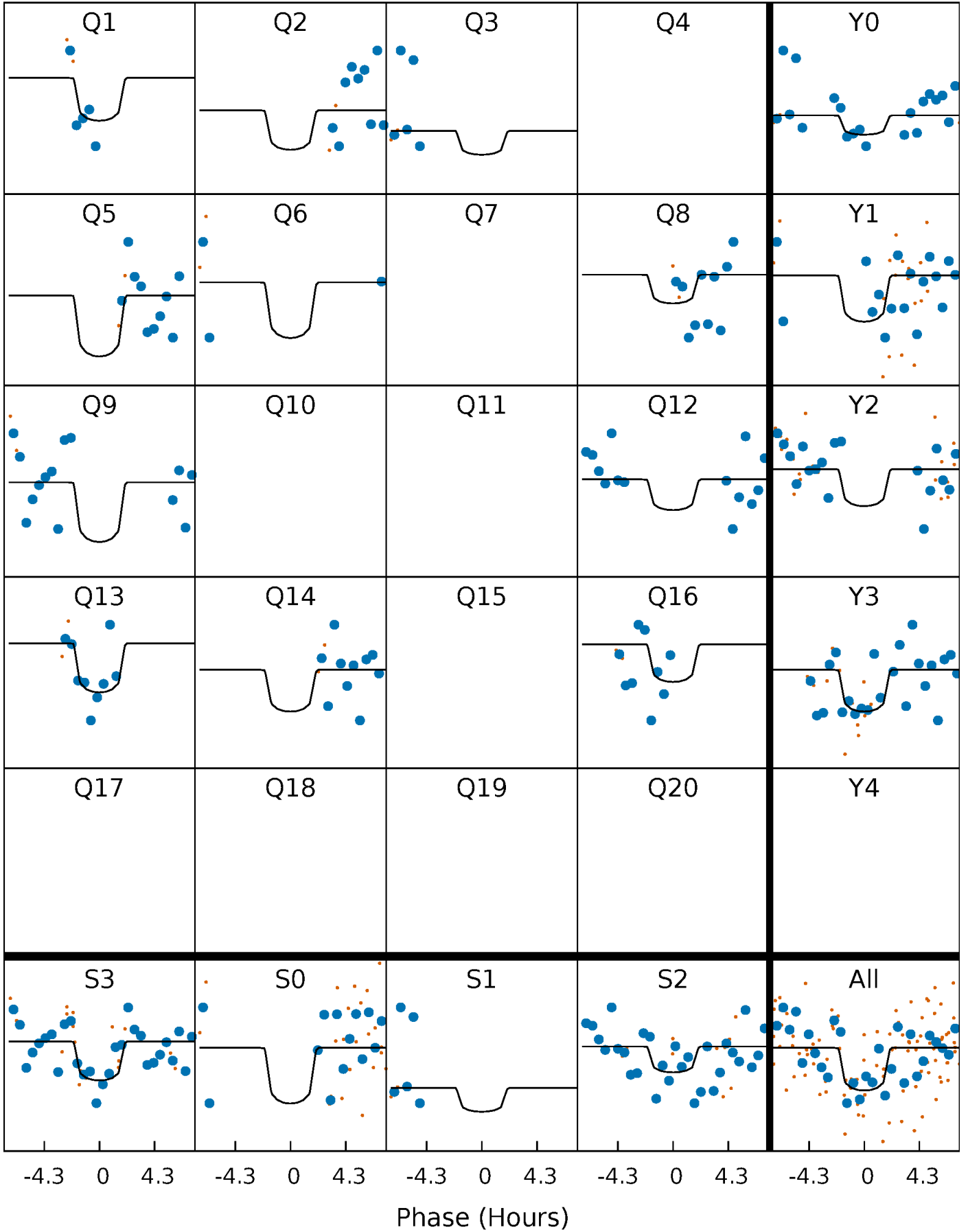
PDC Quarter-Phased Transit Curves

TCE 010620386-09 $P = 35.872668$ Days $T_0 = 147.147565$ (BKJD)



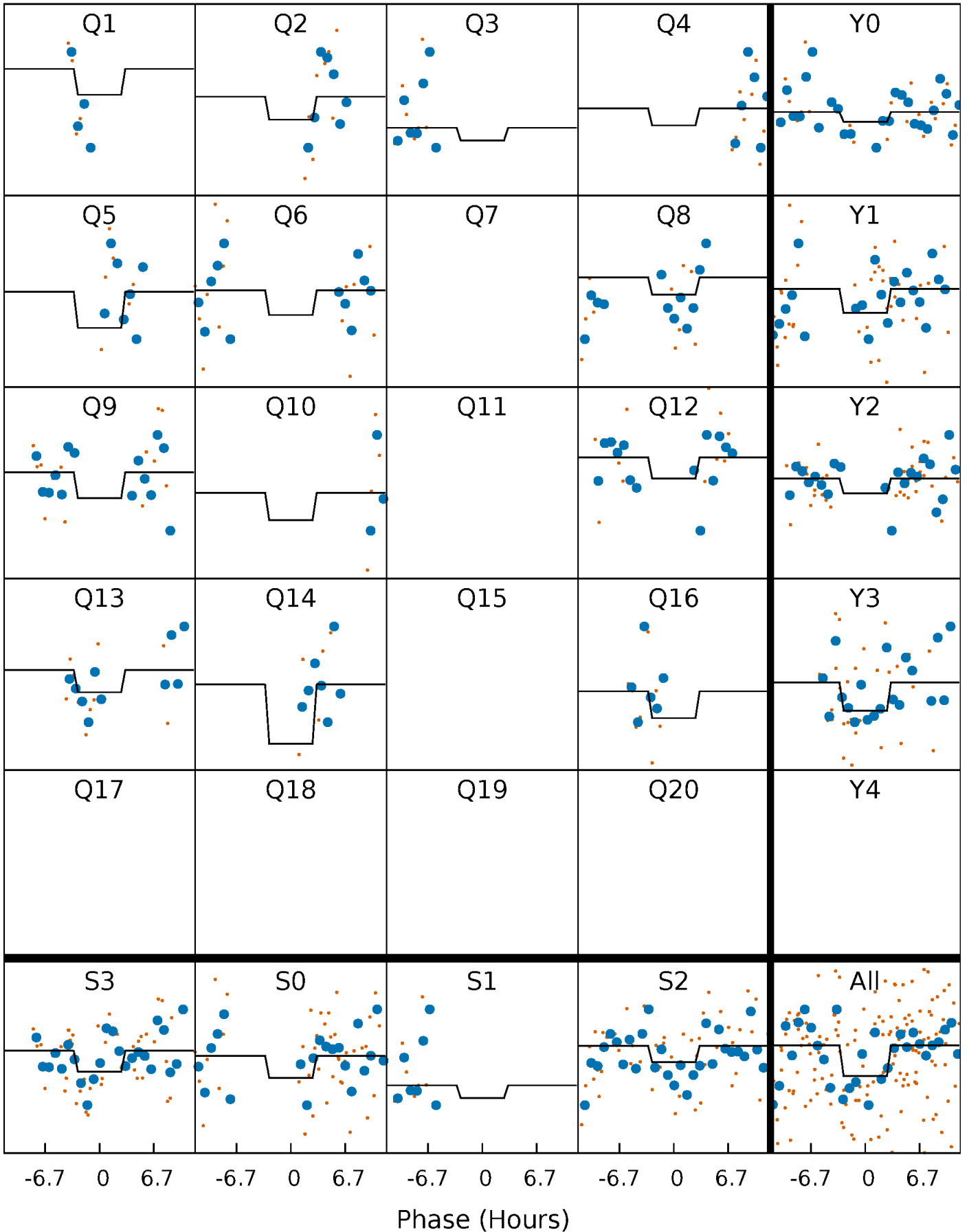
DV Quarter-Phased Transit Curves

TCE 010620386-09 P= 35.872668 Days $T_0=147.147565$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

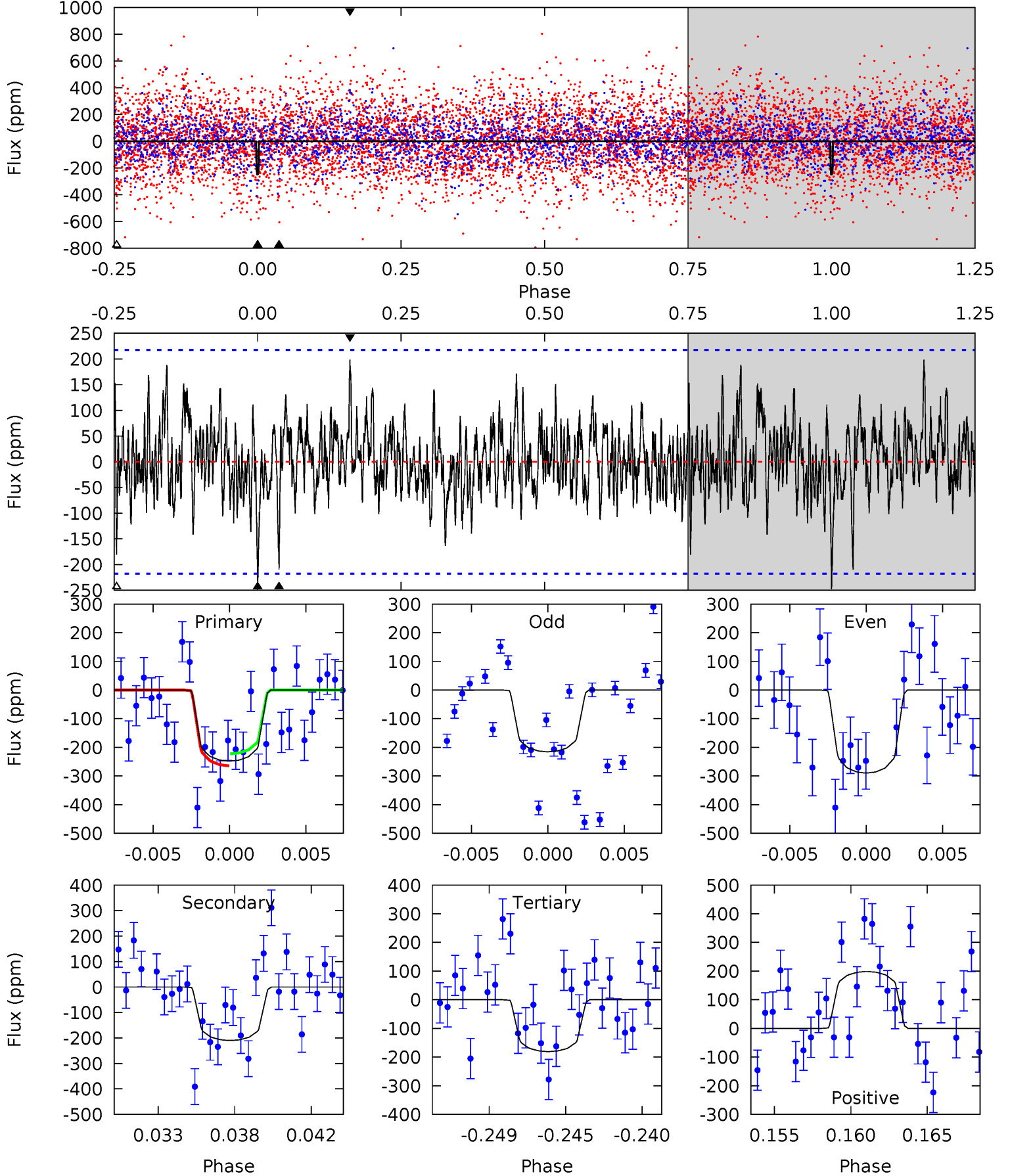
TCE 010620386-09 P= 35.872503 Days $T_0=147.202318$ (BKJD)



DV Model-Shift Uniqueness Test

010620386-09, P = 35.872668 Days, E = 111.274897 Days

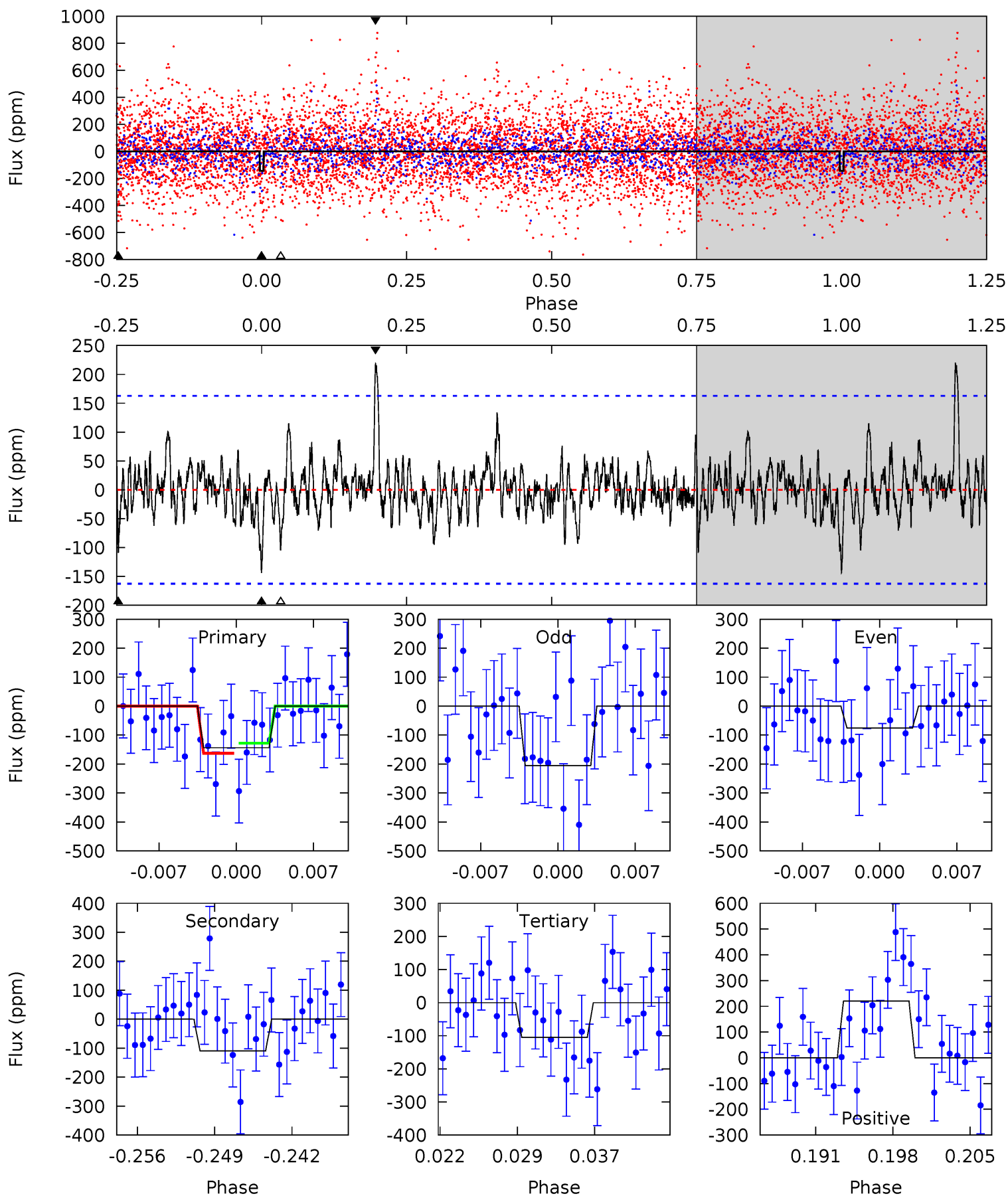
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.89	4.99	4.30	4.72	5.17	2.83	1.34	1.59	1.18	0.69	0.27	0.88	1.09	0.44	0.49



Alt Model-Shift Uniqueness Test

010620386-09, P = 35.872503 Days, E = 111.329815 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.49	3.42	3.28	6.89	5.09	2.68	1.15	1.21	-2.40	0.14	-3.47	2.04	0.95	0.61	0.54



Stellar Parameters For KIC 010620386

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6760^{+189}_{-236}	$4.187^{+0.158}_{-0.175}$	$-0.340^{+0.250}_{-0.300}$	$1.482^{+0.410}_{-0.336}$	$1.237^{+0.170}_{-0.208}$	$0.536^{+0.500}_{-0.263}$
	+3%/-3%	+4%/-4%	+74%/-88%	+28%/-23%	+14%/-17%	+93%/-49%
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 010620386-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-210 ± 42	$2.96^{+2.06}_{-1.75}$	1064^{+77}_{-68}	5961^{+4125}_{-1226}	666^{+3563}_{-435}
Alt.	-109 ± 32	$2.28^{+1.88}_{-1.45}$	1065^{+80}_{-72}	5739^{+4741}_{-1302}	573^{+4067}_{-409}

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 $A_{obs} \gg 1.0$

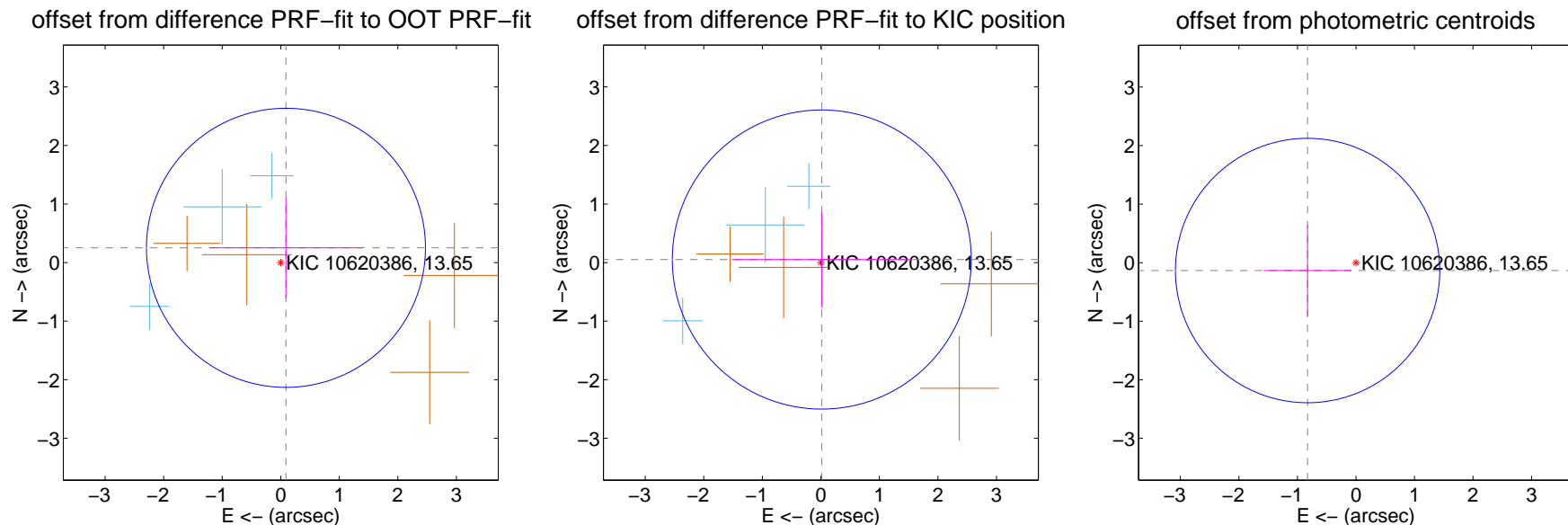
DV Centroid Data

Supplemental centroid analysis for 010620386-09. Kepler magnitude: 13.65. Transit SNR 8.69

There are 3 quarters with good PRF difference image offsets

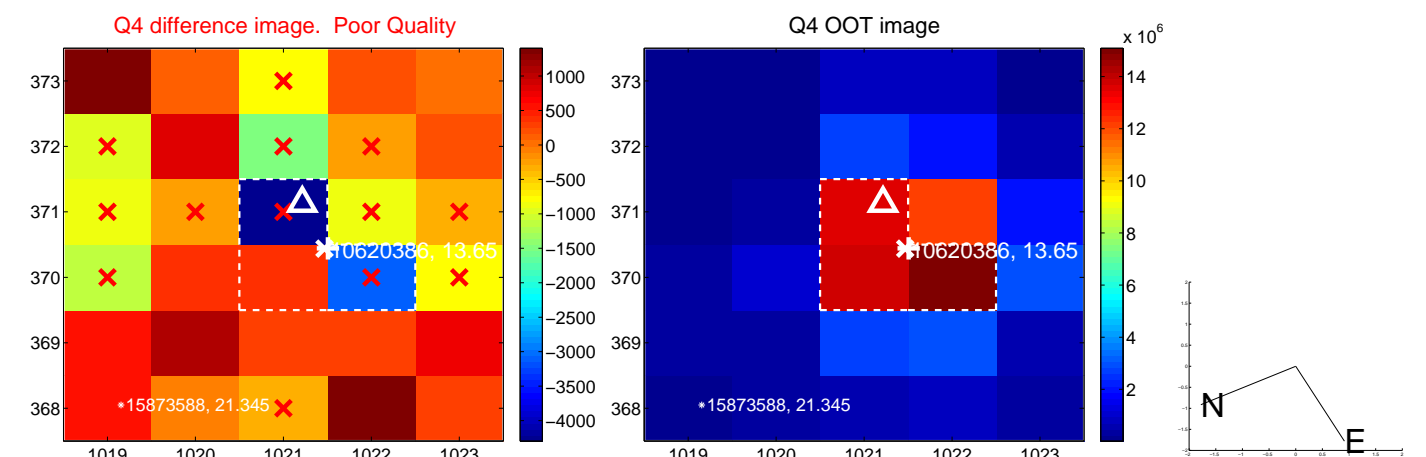
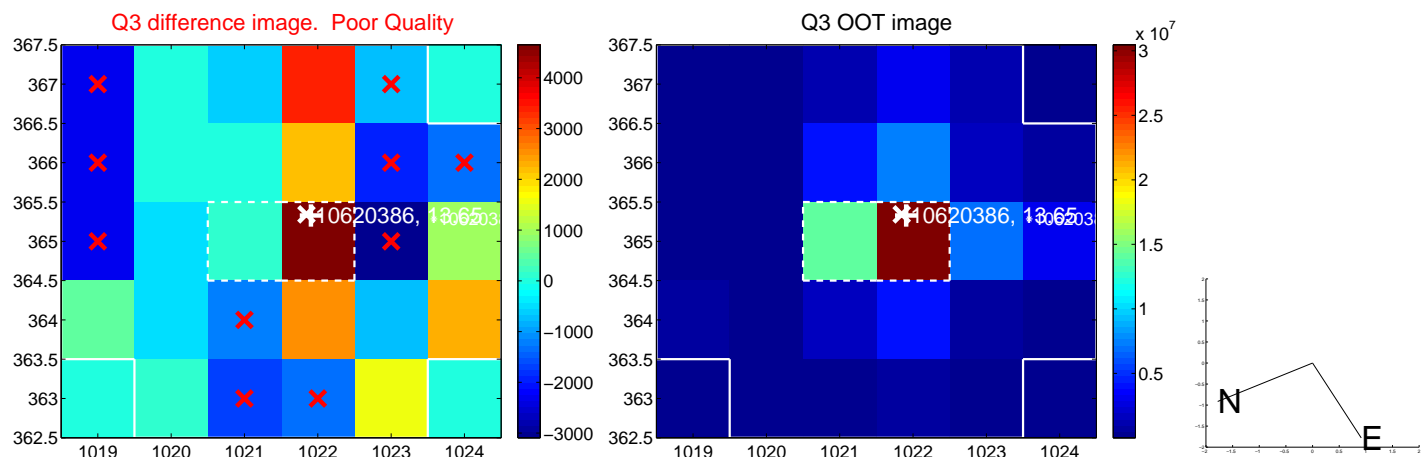
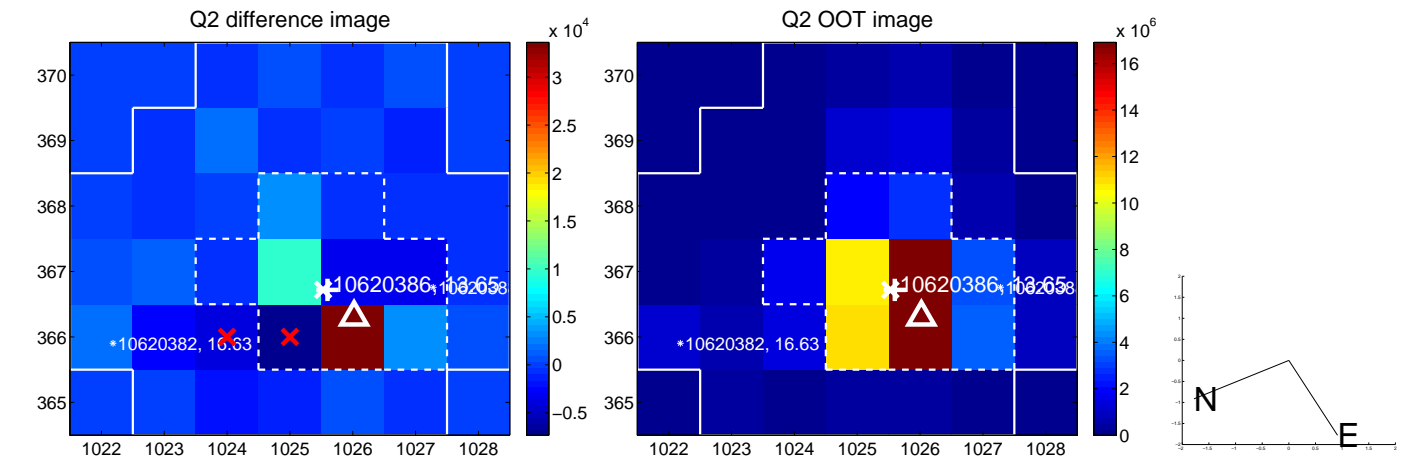
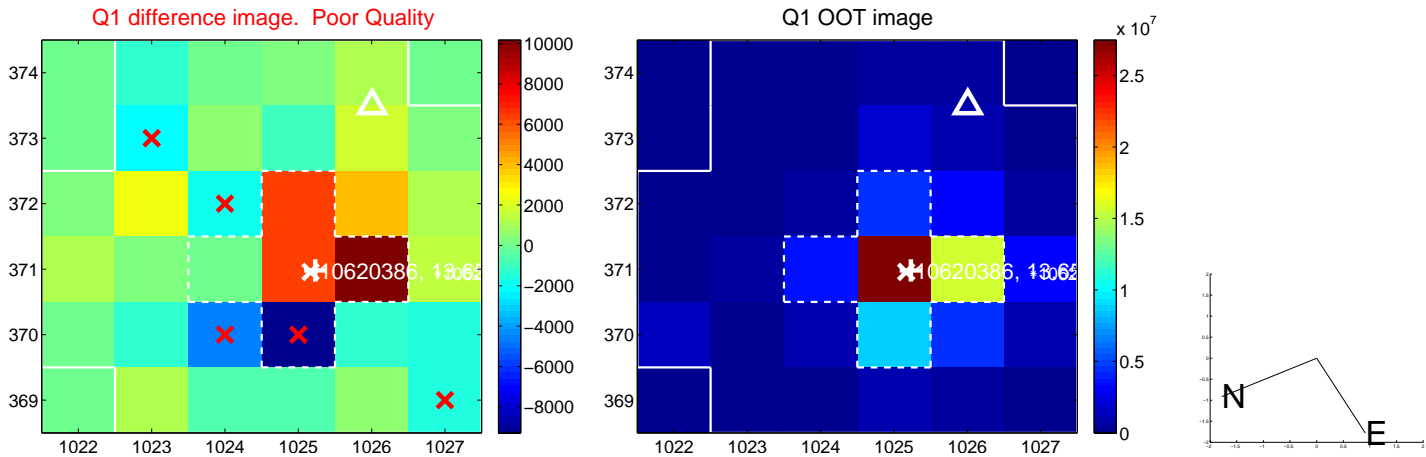
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.267 ± 0.794	0.34	-0.089 ± 1.302	0.252 ± 0.856
PRF-fit source offset from KIC position	0.055 ± 0.851	0.06	-0.016 ± 1.531	0.052 ± 0.818
photometric centroid source offset	0.84 ± 0.75	1.11	0.83 ± 0.75	-0.13 ± 0.78

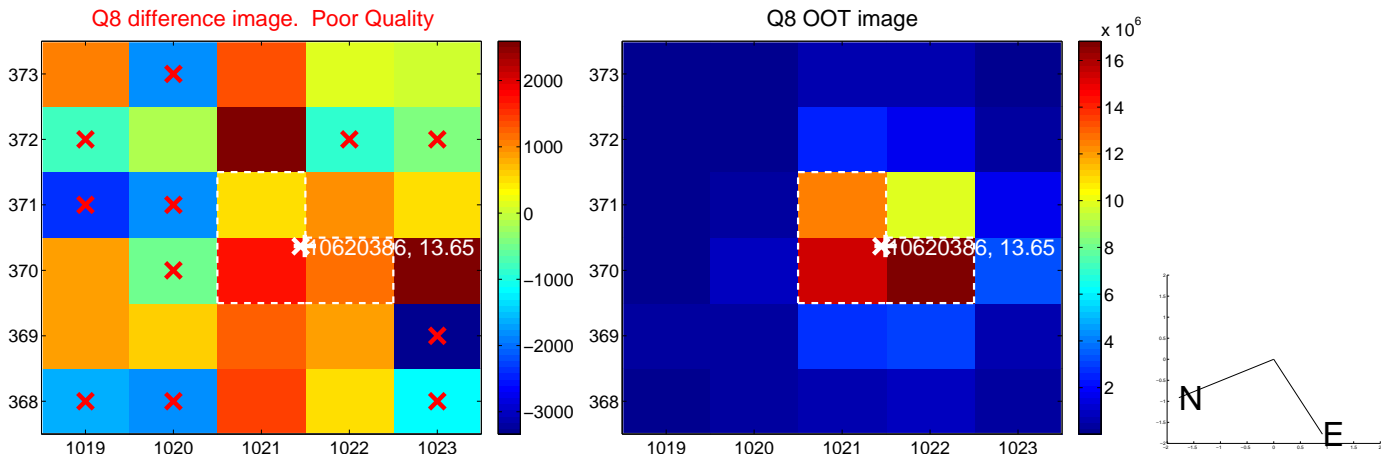
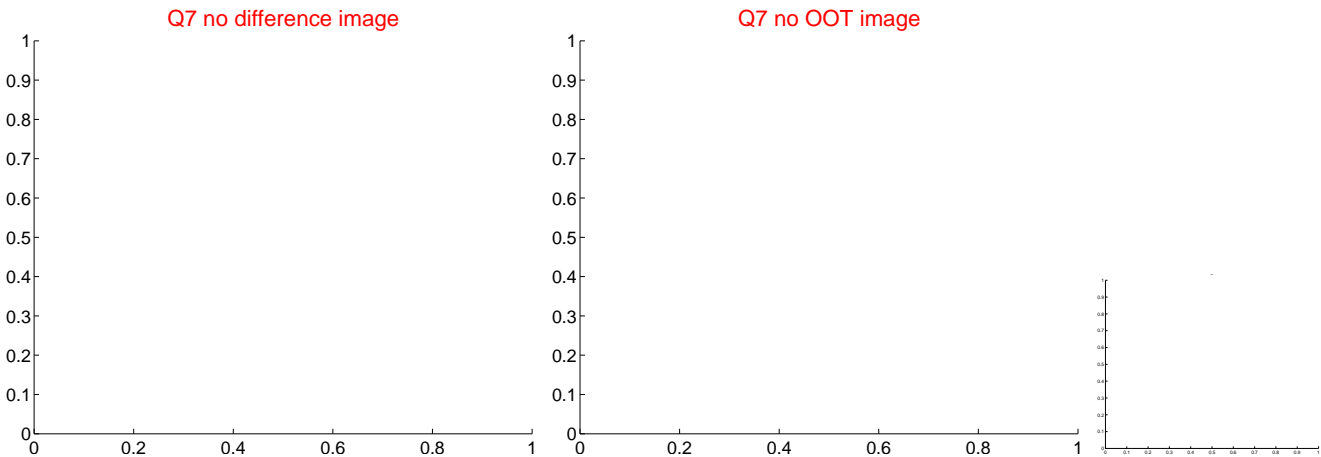
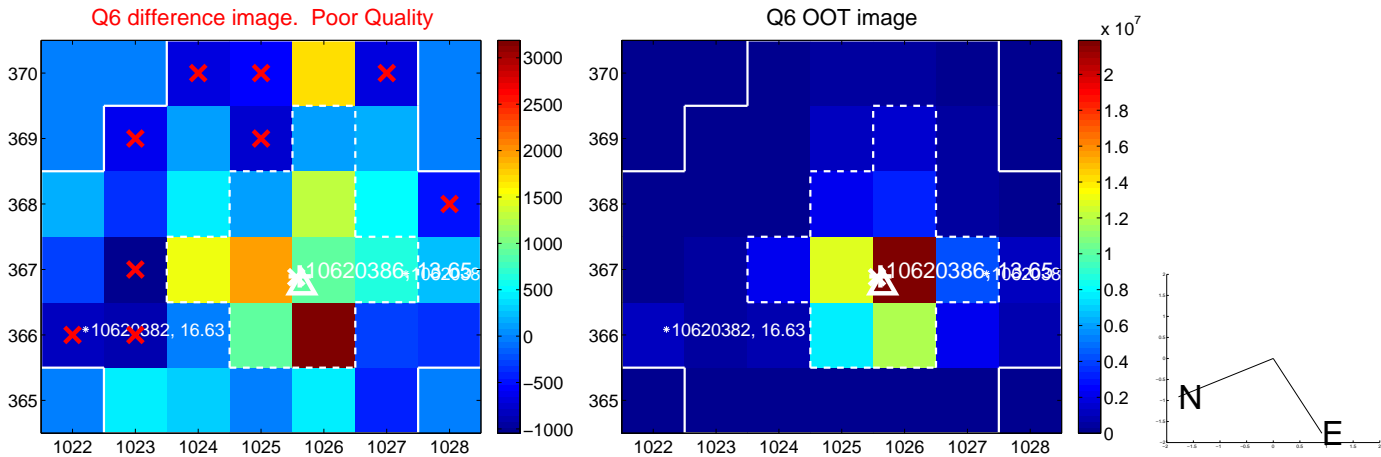
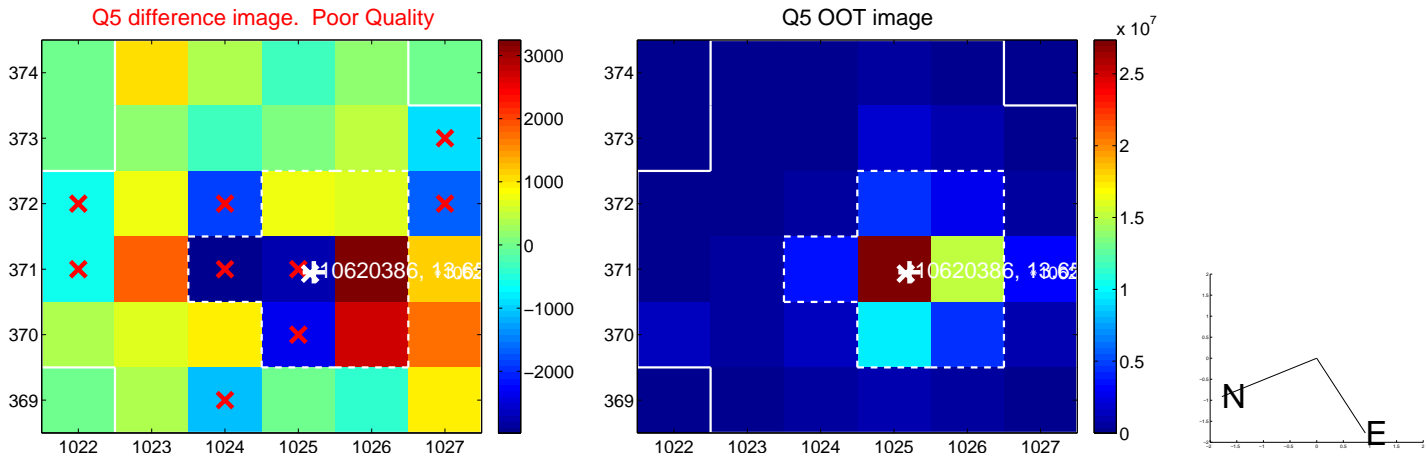


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

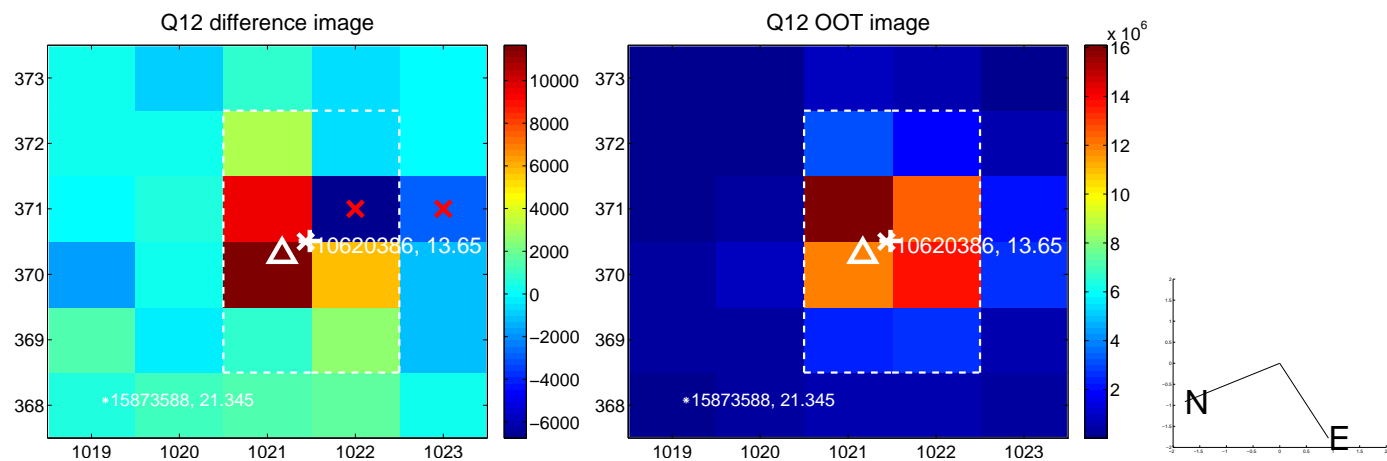
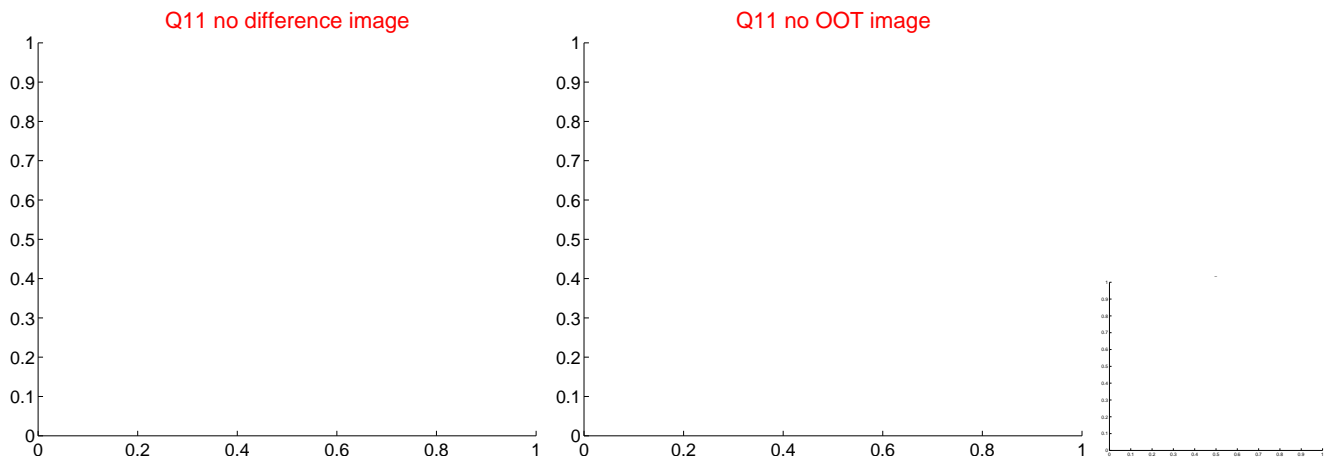
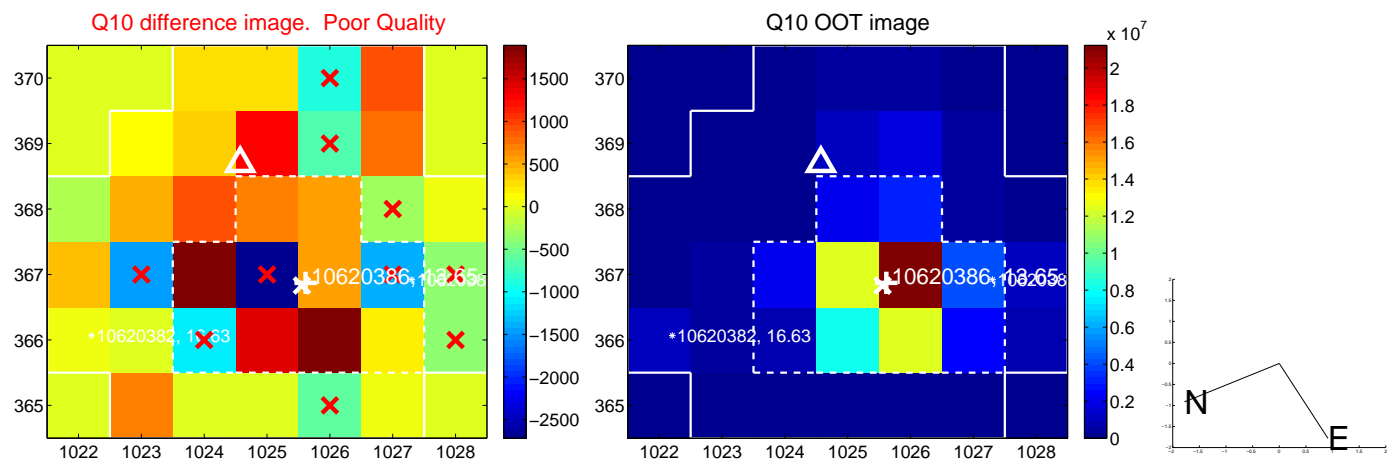
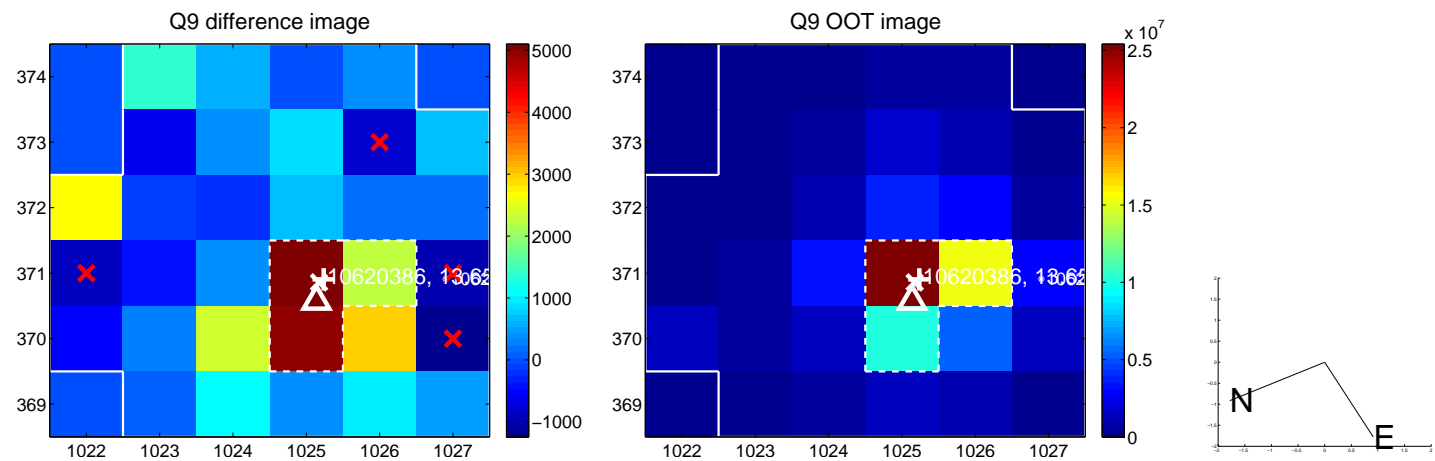
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



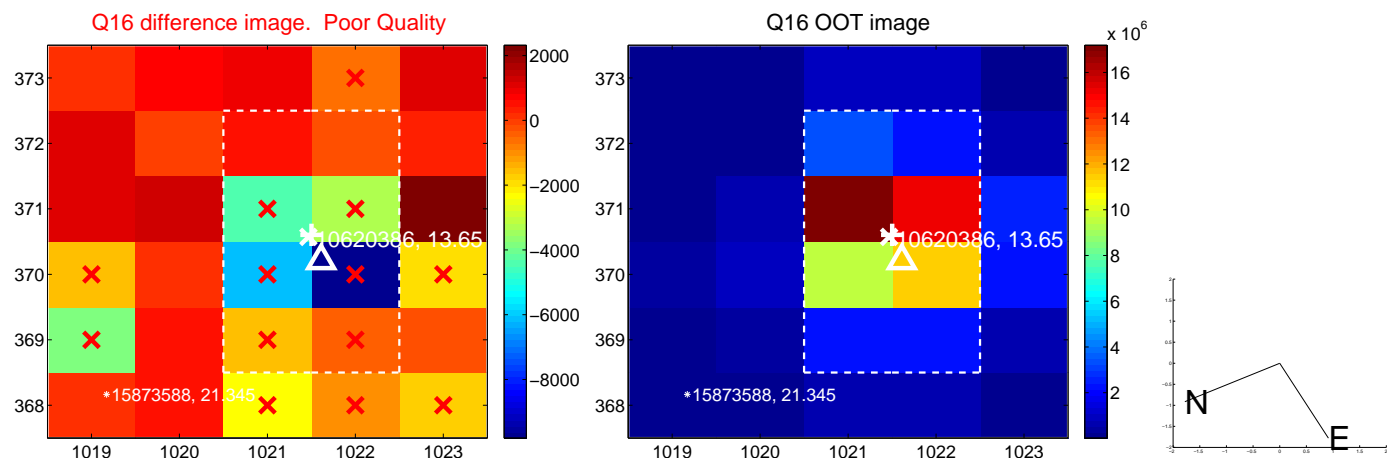
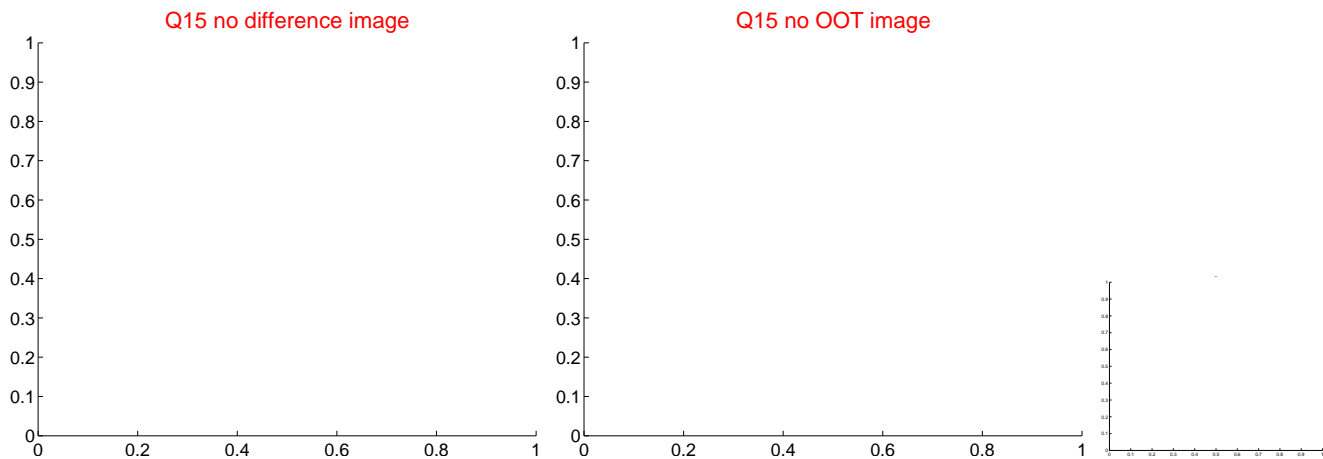
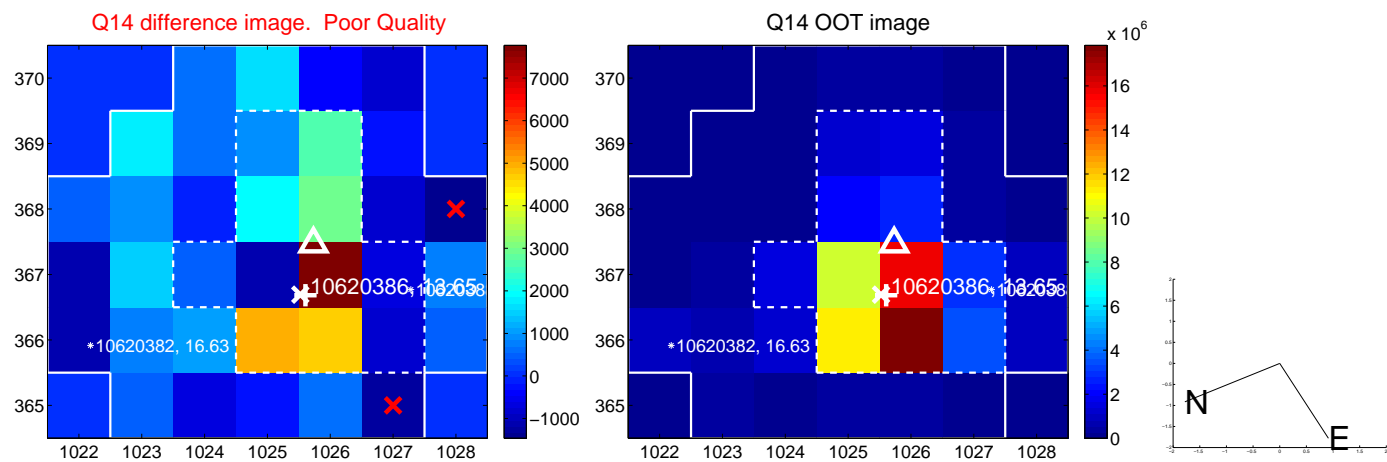
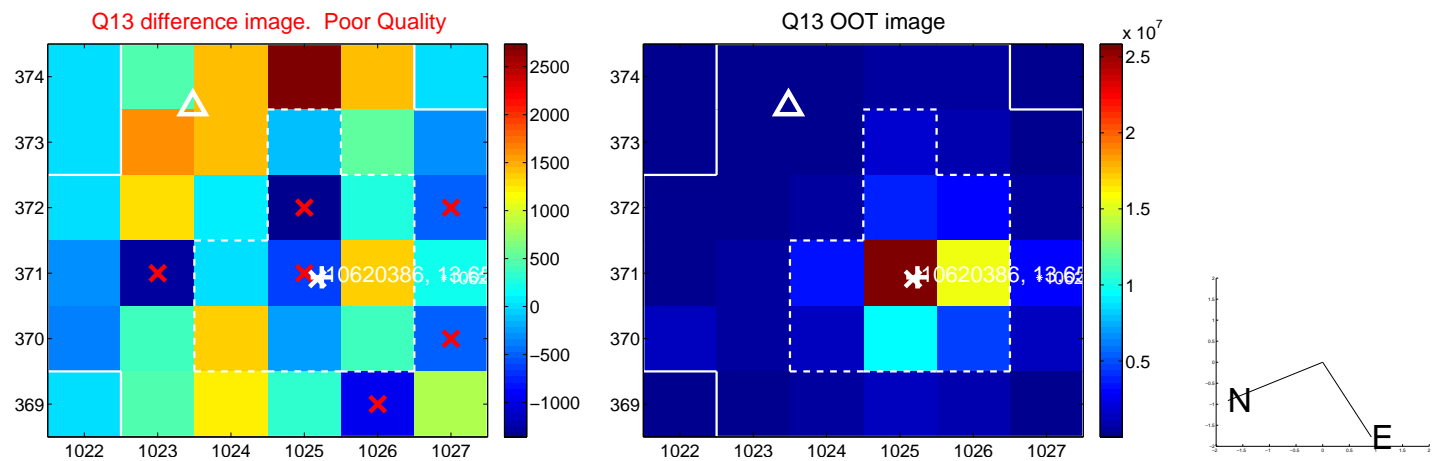
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



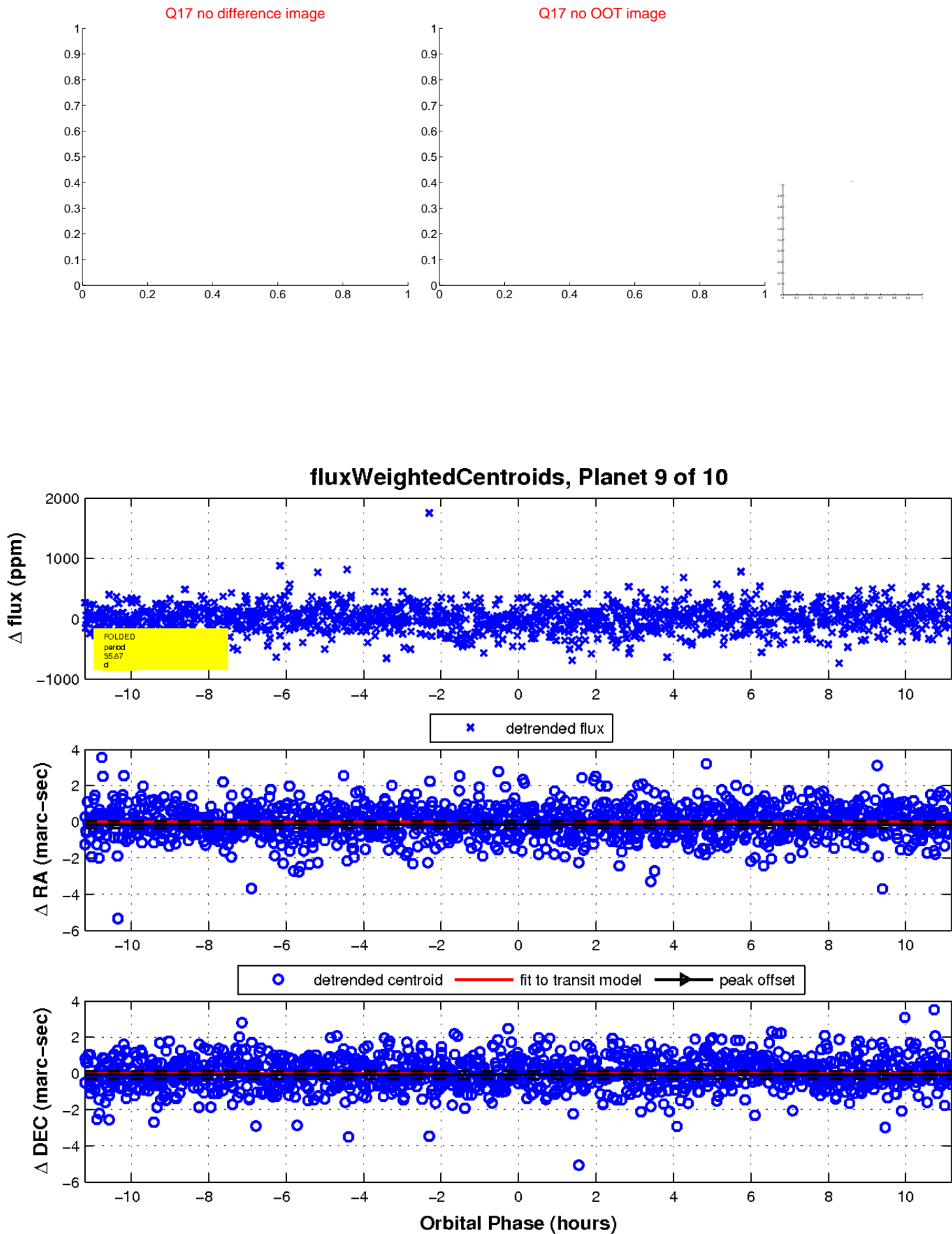
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

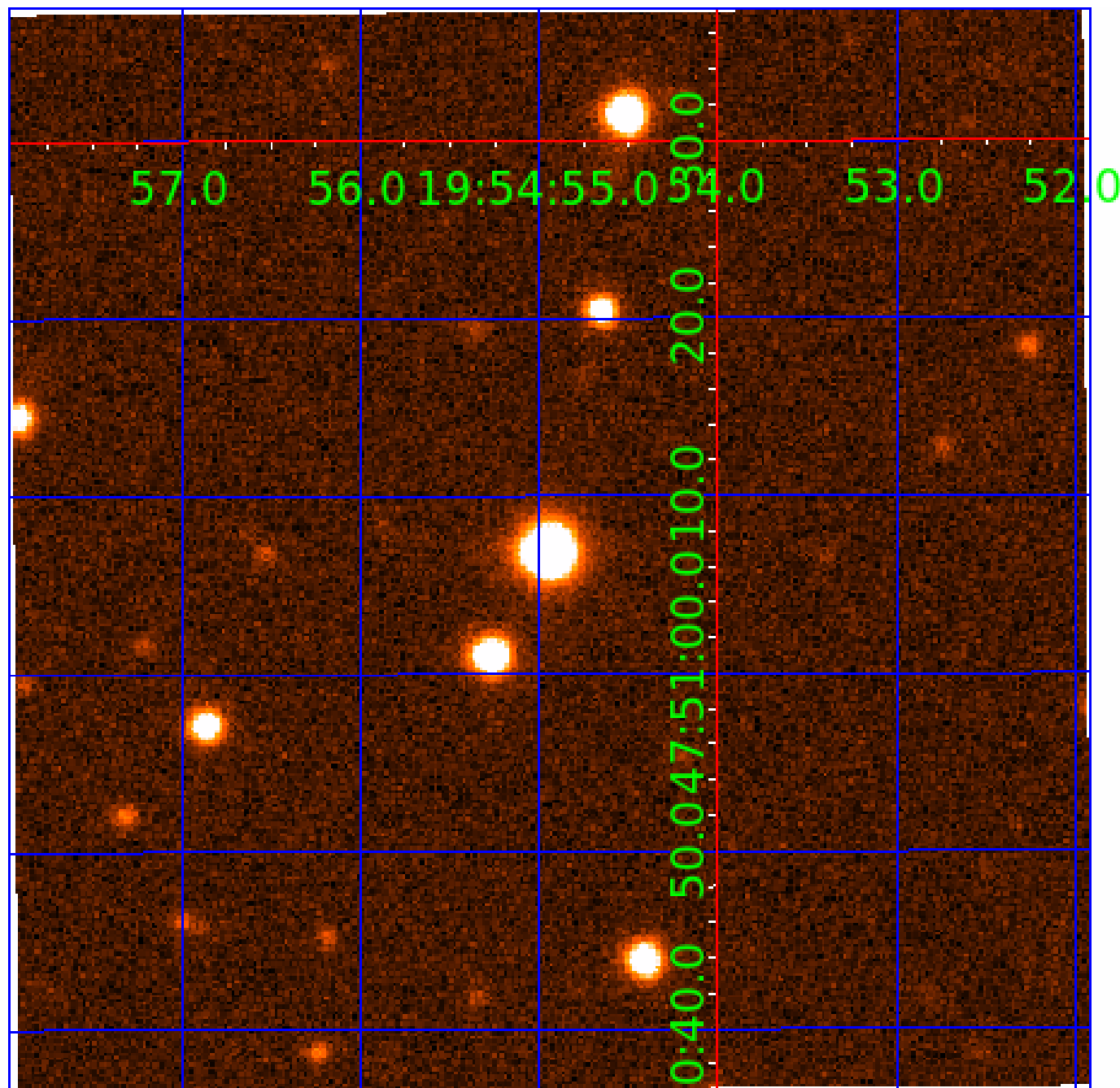


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010620386

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})
010620386-01	OBS	No	1.767922	132.121428	5.8	12.225	7.9	2.4	1.48	6760	0.38	4364.78
010620386-02	OBS	No	44.080619	166.027943	343.6	2.145	12.5	11.5	1.48	6760	2.95	59.92
010620386-03	OBS	No	48.202635	163.525750	465.8	2.026	11.2	9.4	1.48	6760	3.40	53.19
010620386-04	OBS	No	22.111977	133.011494	313.4	2.066	11.3	10.7	1.48	6760	2.94	150.34
010620386-05	OBS	No	157.912847	247.435004	263.1	5.144	9.8	9.7	1.48	6760	2.71	10.93
010620386-06	OBS	No	282.834750	152.515978	274.3	3.433	8.8	9.1	1.48	6760	2.72	5.03
010620386-07	OBS	No	18.357959	145.864348	253.8	2.290	10.9	10.9	1.48	6760	2.41	192.67
010620386-08	OBS	No	16.002501	147.312204	275.0	2.385	9.2	8.6	1.48	6760	2.77	231.38
010620386-09	OBS	No	35.872668	147.147565	262.3	3.732	8.5	8.7	1.48	6760	2.65	78.87
010620386-10	OBS	No	23.456372	140.582661	266.4	2.684	8.4	7.5	1.48	6760	2.82	138.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010620386-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-04	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010620386-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010620386-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV
010620386-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010620386-09	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
010620386-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

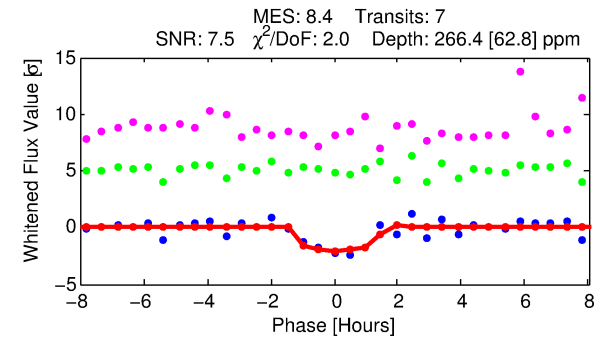
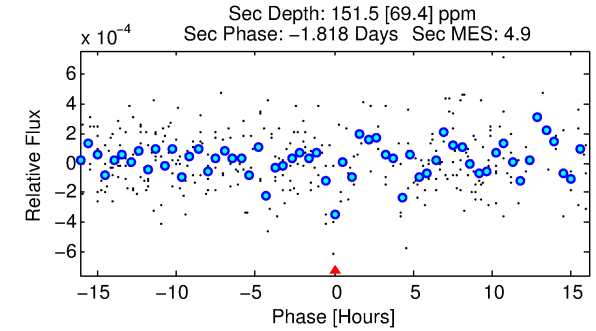
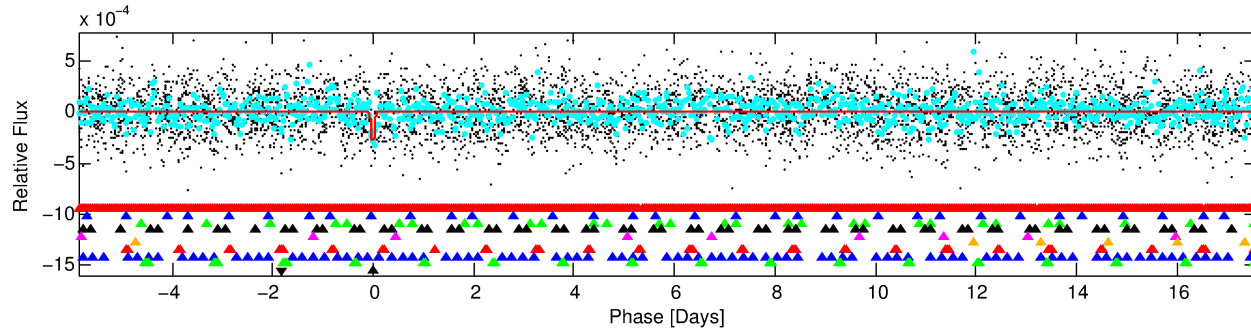
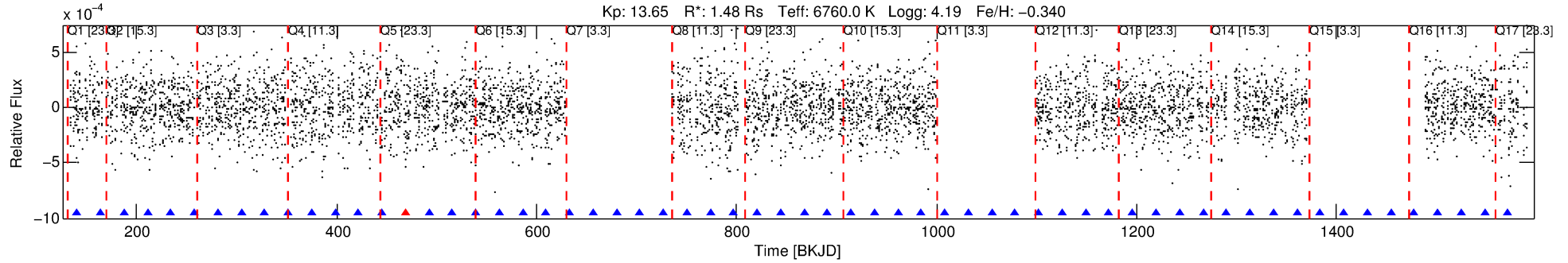
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010620386-10

No Significant Match Found

DV One-Page Summary

KIC: 10620386 Candidate: 10 of 10 Period: 23.456 d

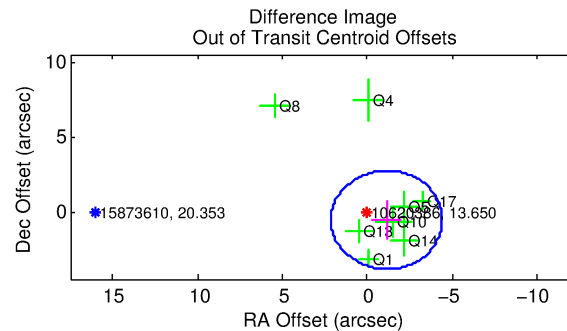
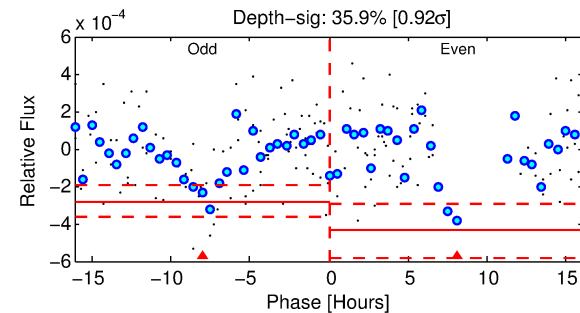
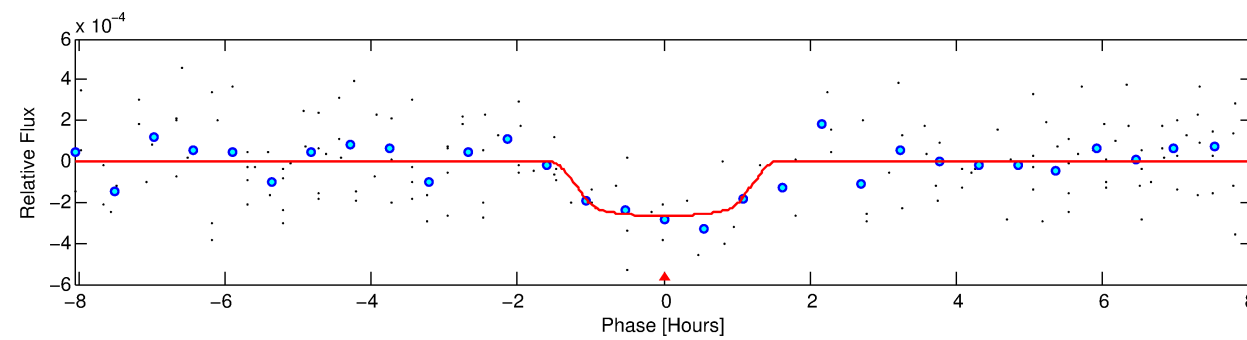


DV Fit Results:

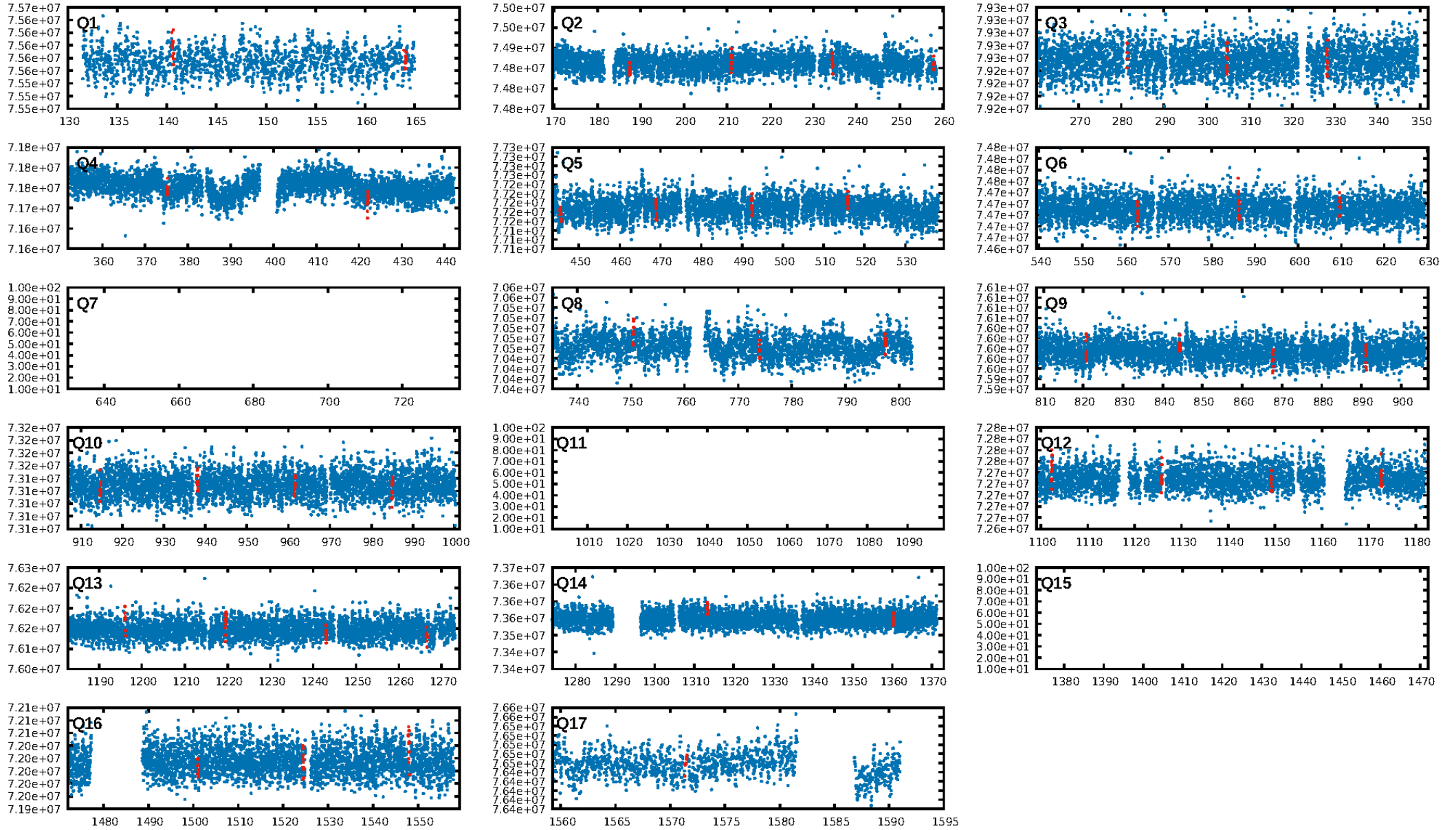
Period = 23.45637 [0.00042] d
Epoch = 140.5827 [0.0147] BKJD
Rp/R* = 0.0174 [0.0100]
a/R* = 31.59 [102.96]
b = 0.90 [0.69]
Seff = 138.96 [49.26]
Teq = 875 [78] K
Rp = 2.82 [1.79] Re
a = 0.1720 [0.0392] AU
Ag = 309.95 [394.36] [0.78 σ]
Teffp = 5680 [1758] K [2.73 σ]

DV Diagnostic Results:

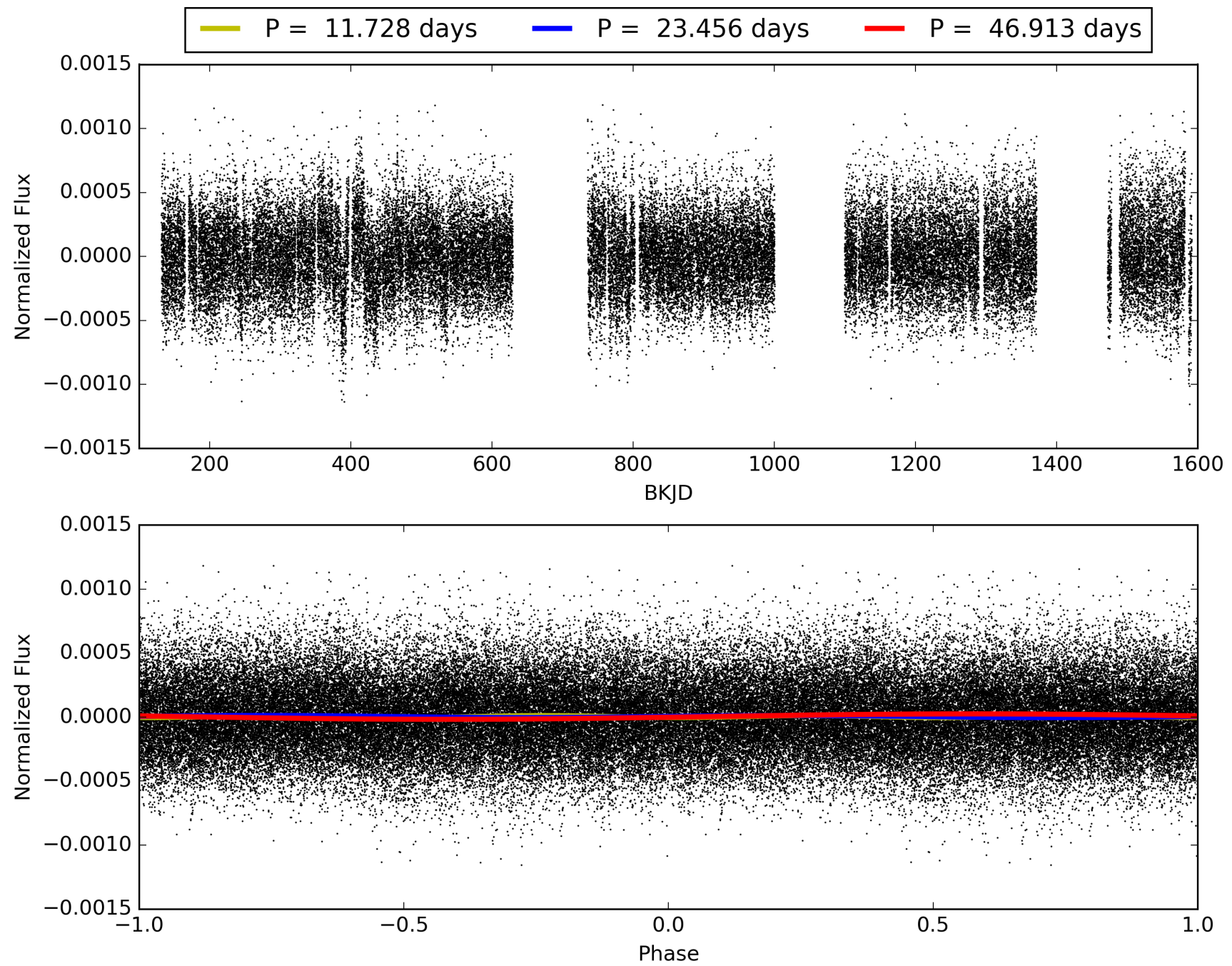
ShortPeriod-sig: 100.0% [9.53 σ]
LongPeriod-sig: 100.0% [64.83 σ]
ModelChiSquare2-sig: 7.2%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 6.06e-07
RollingBand-fgt: 0.86 [6/7]
GhostDiagnostic-chr: 1.033
Centroid-sig: 3.4%
Centroid-so: 0.595 arcsec [0.82 σ]
OotOffset-rm: 1.283 arcsec [1.17 σ]
OotOffset-st: 2/0/2/4 [8]
KicOffset-rm: 1.375 arcsec [0.94 σ]
KicOffset-st: 2/0/2/4 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 0.64 [9/14]



TCE 010620386-10, PDC Light Curves

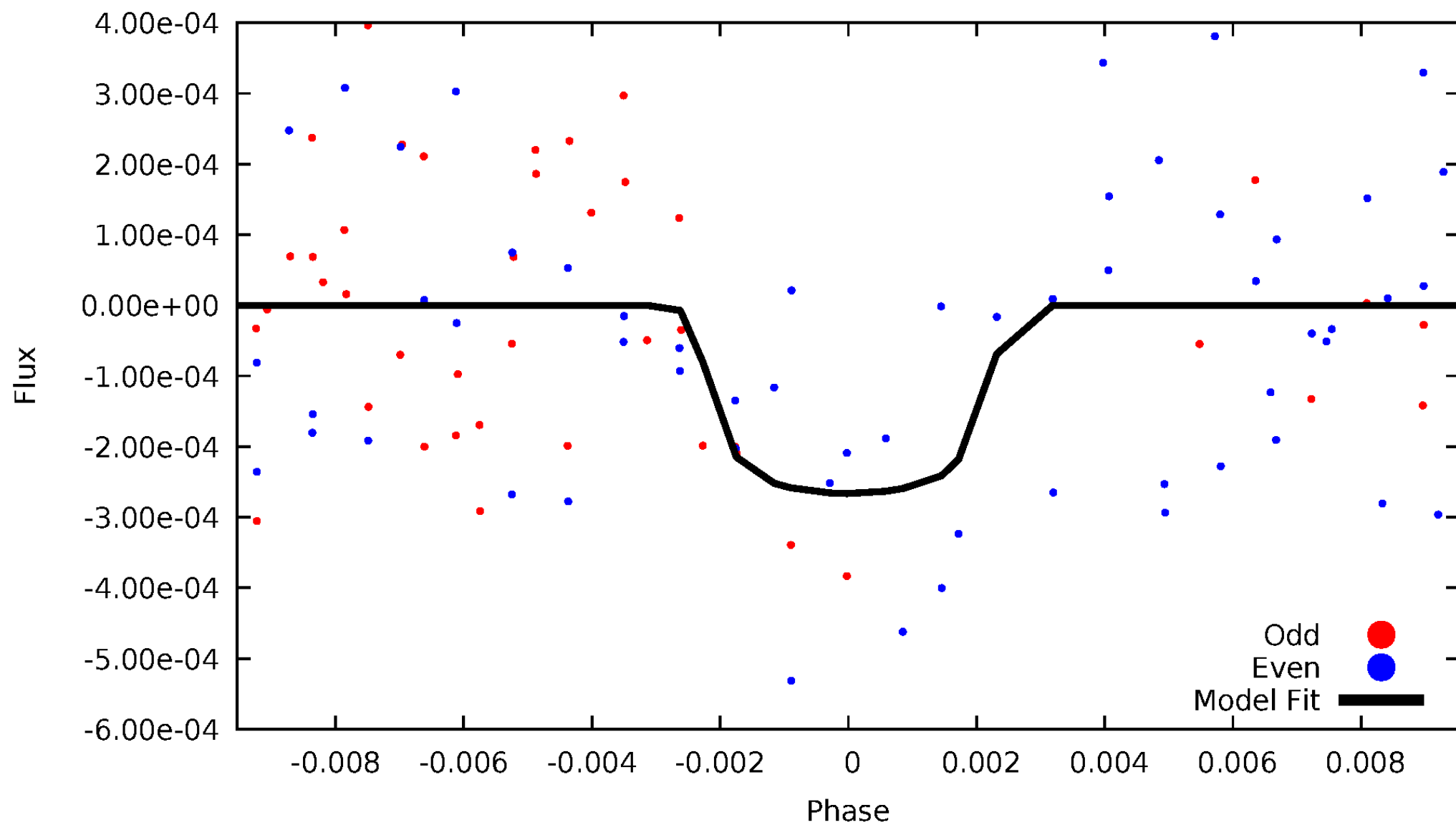


TCE 010620386-10



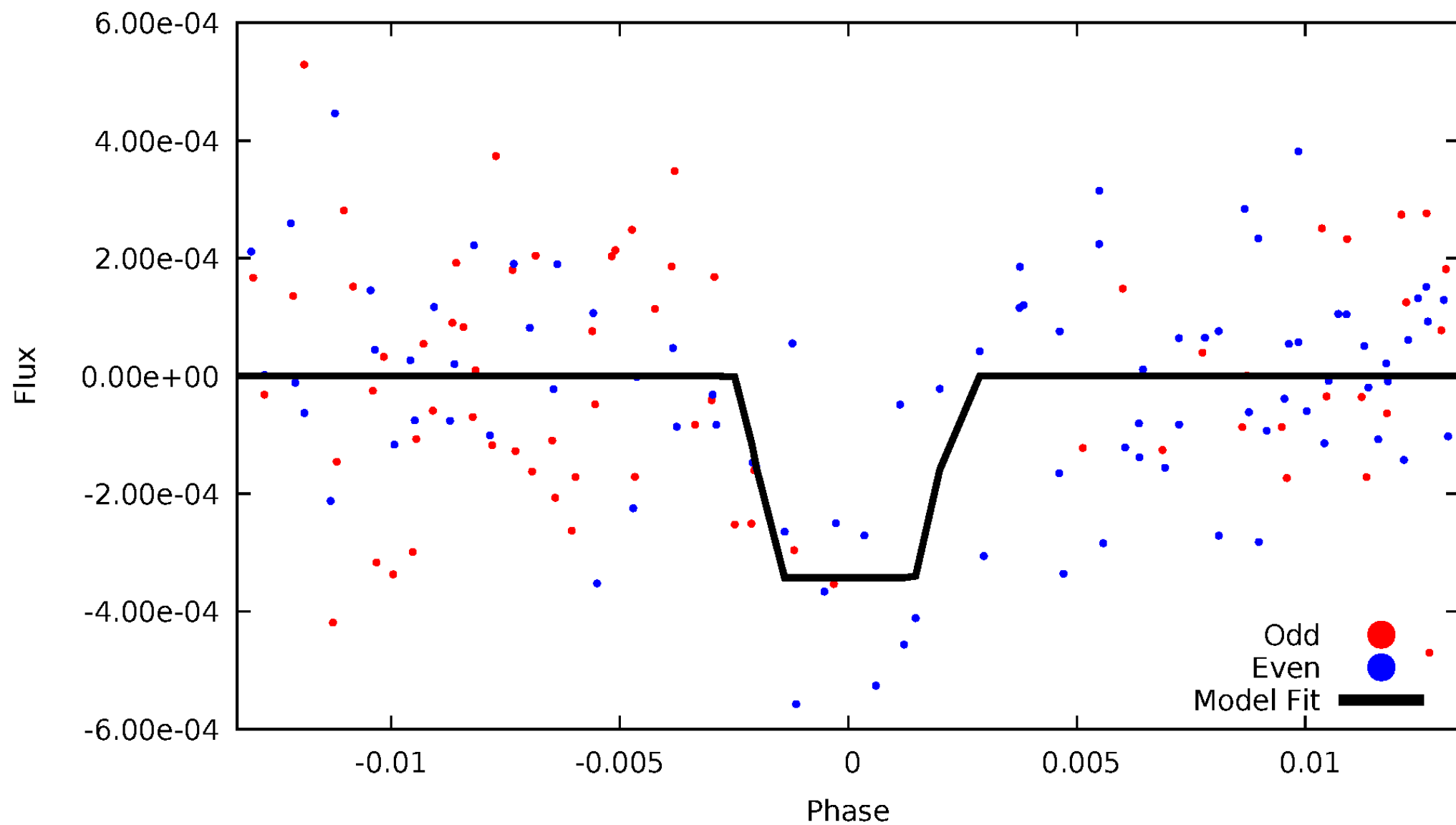
DV Odd/Even

TCE 010620386-10



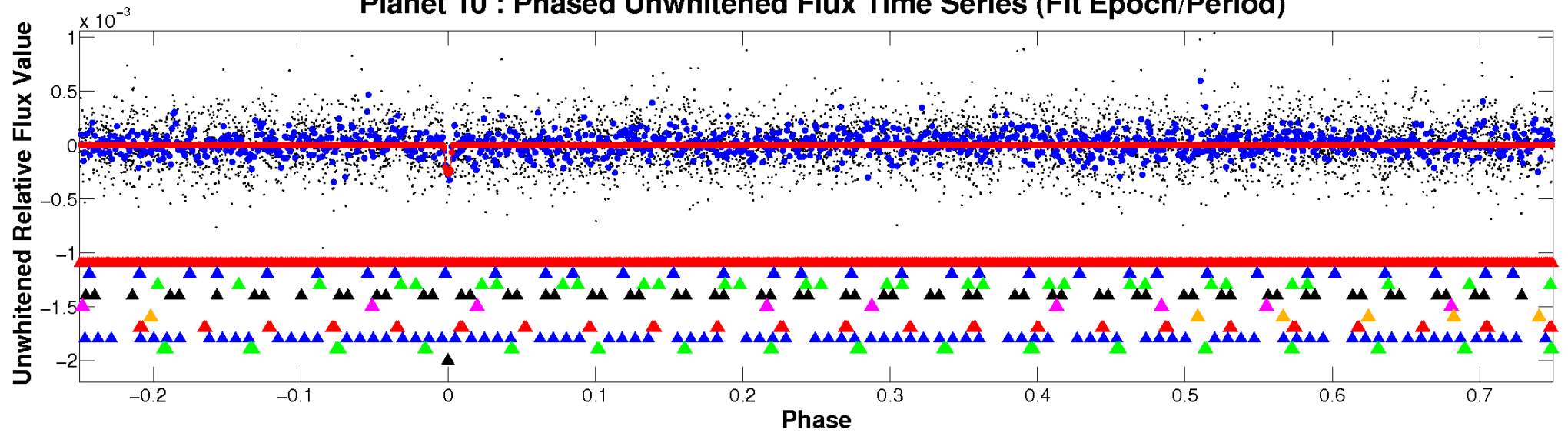
ALT Odd/Even

TCE 010620386-10

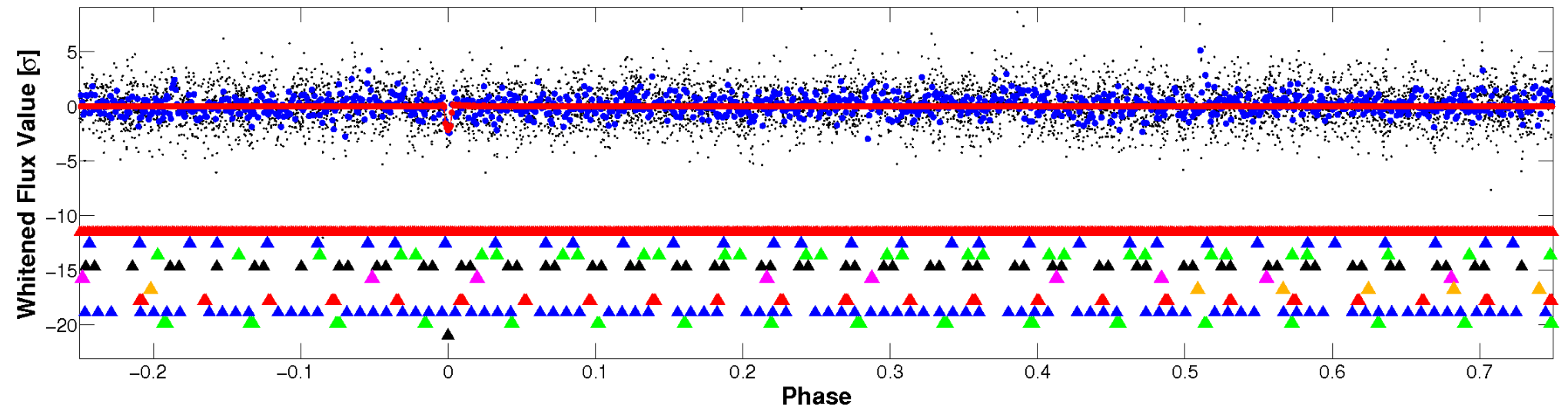


Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

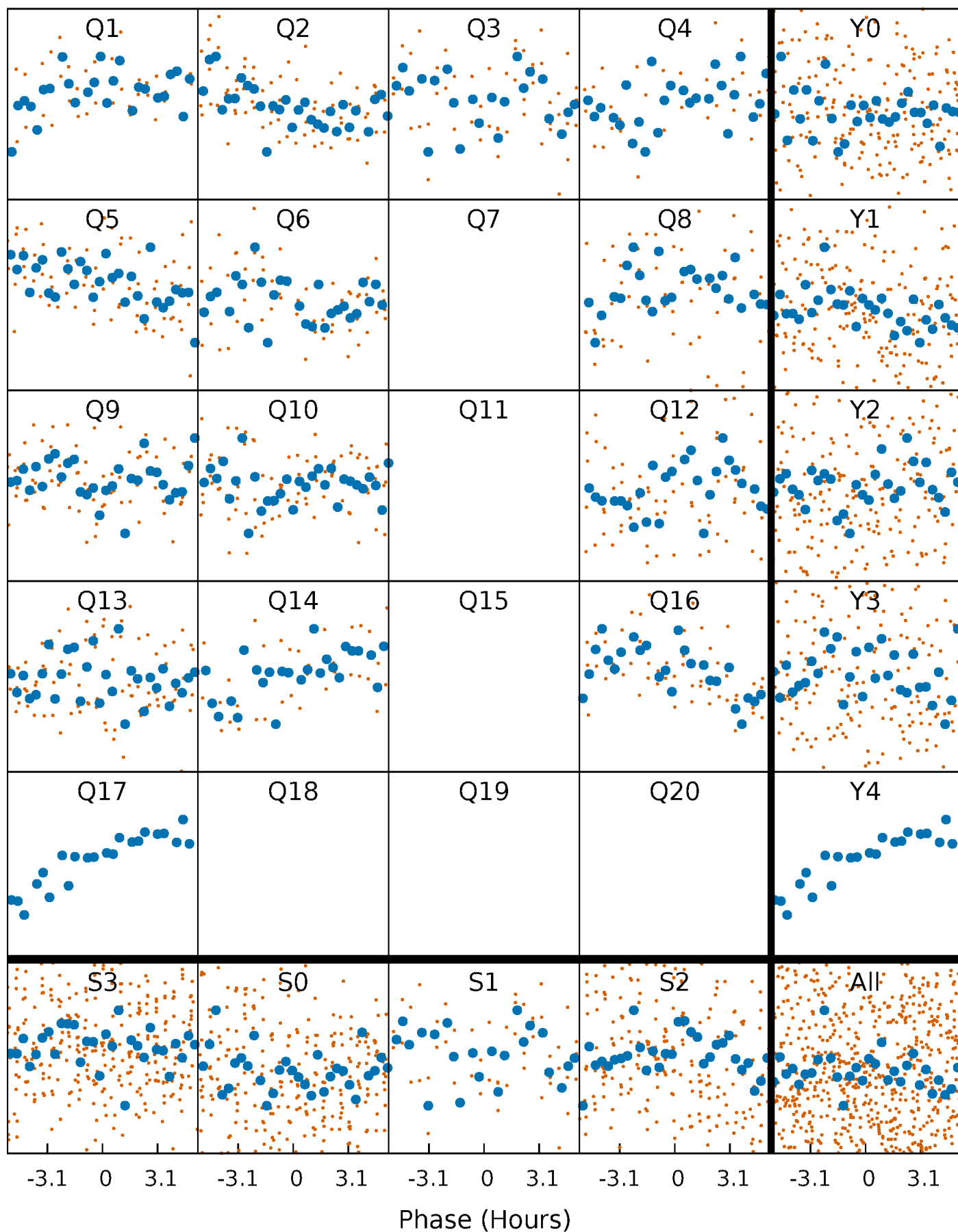


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



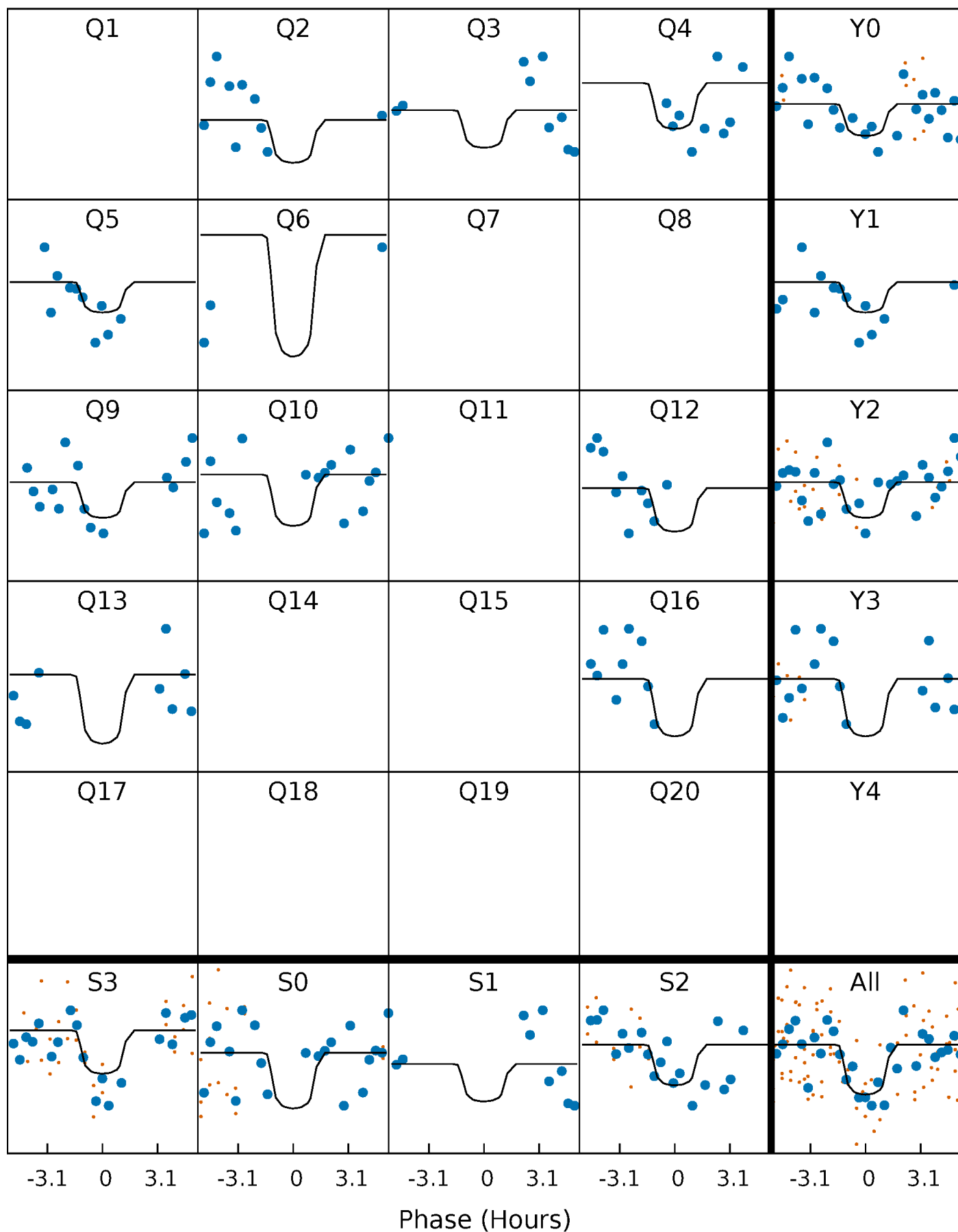
PDC Quarter-Phased Transit Curves

TCE 010620386-10 P= 23.456372 Days $T_0=140.582661$ (BKJD)



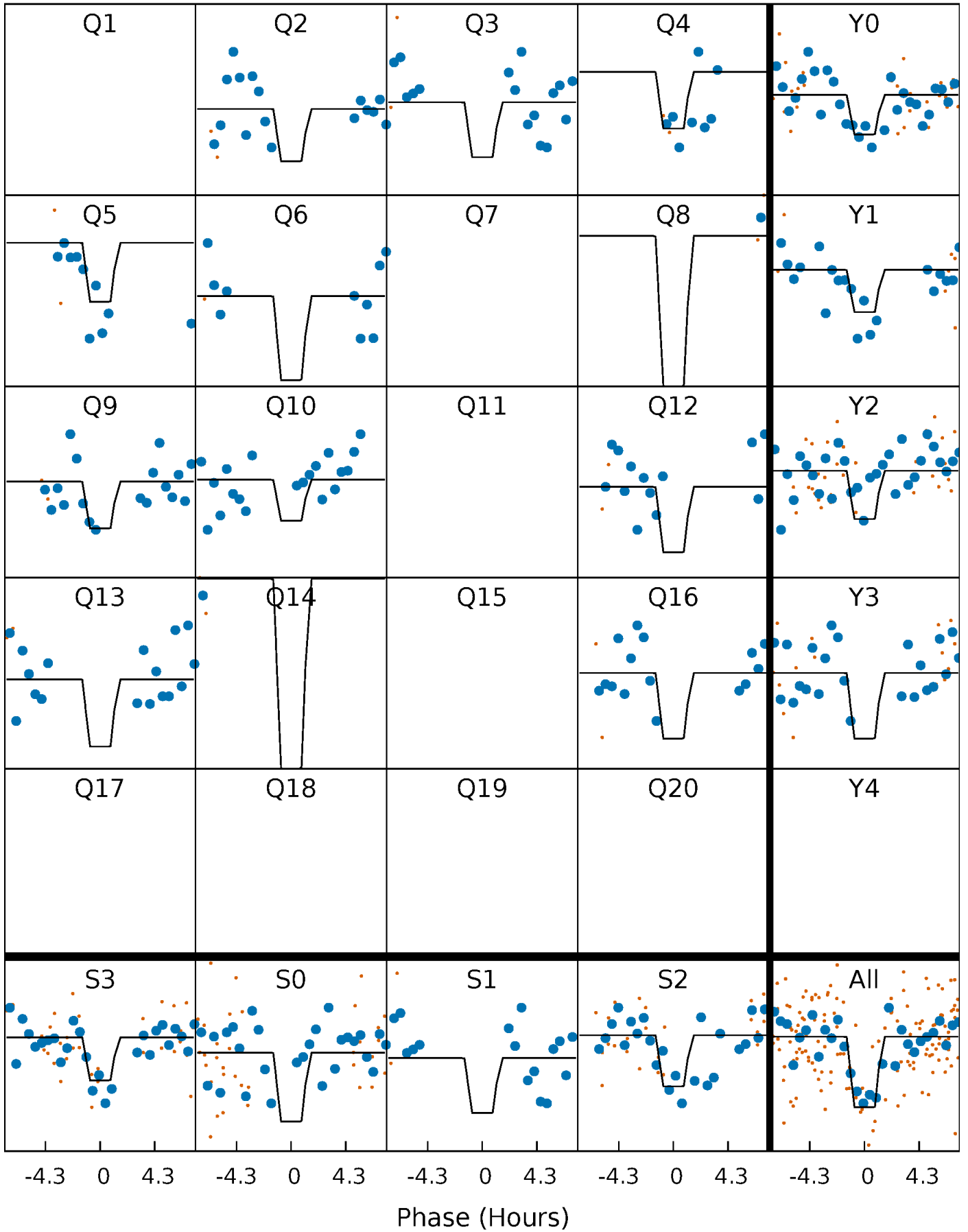
DV Quarter-Phased Transit Curves

TCE 010620386-10 P= 23.456372 Days $T_0=140.582661$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

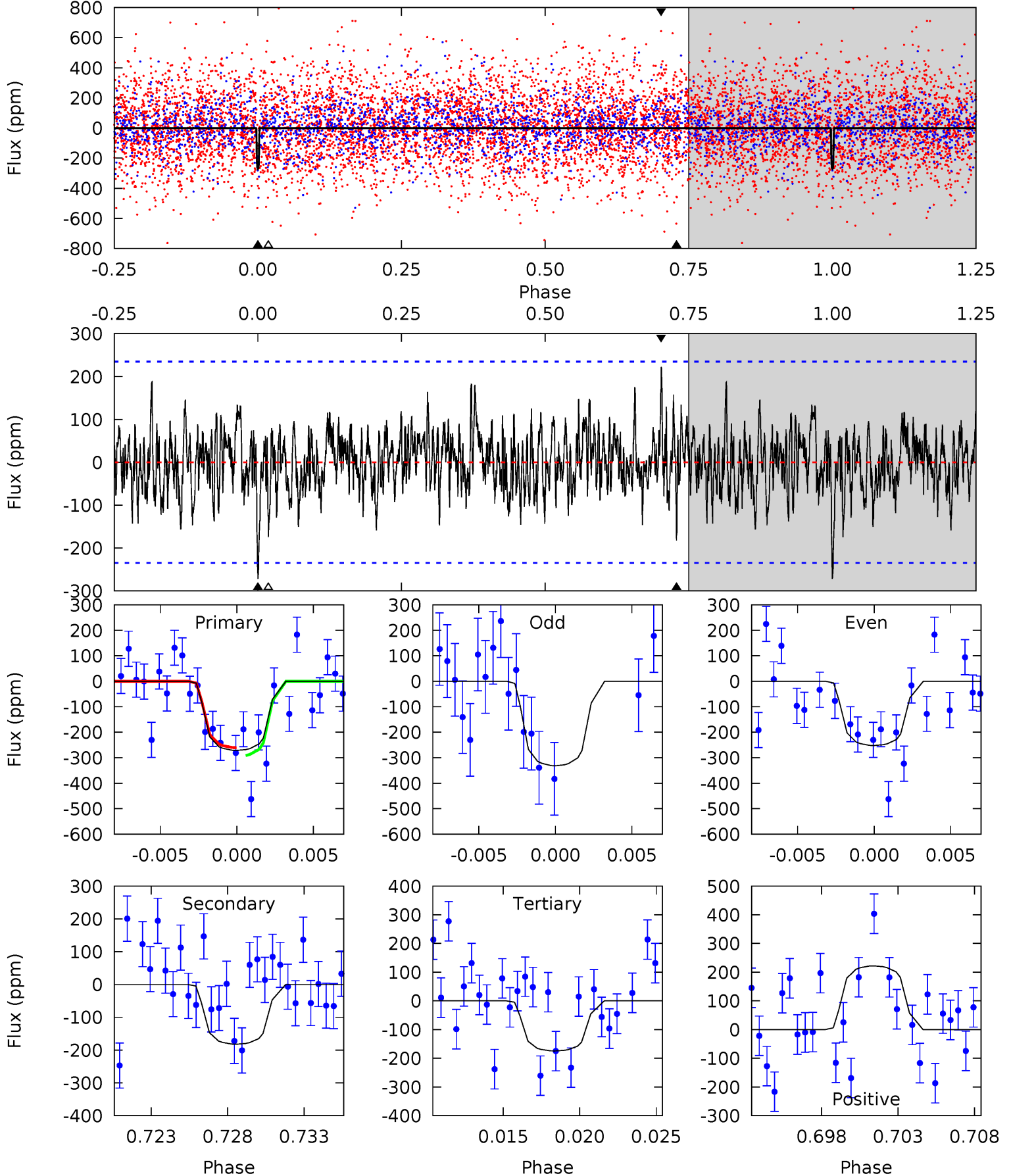
TCE 010620386-10 P= 23.456442 Days $T_0=140.587477$ (BKJD)



DV Model-Shift Uniqueness Test

010620386-10, P = 23.456372 Days, E = 117.126289 Days

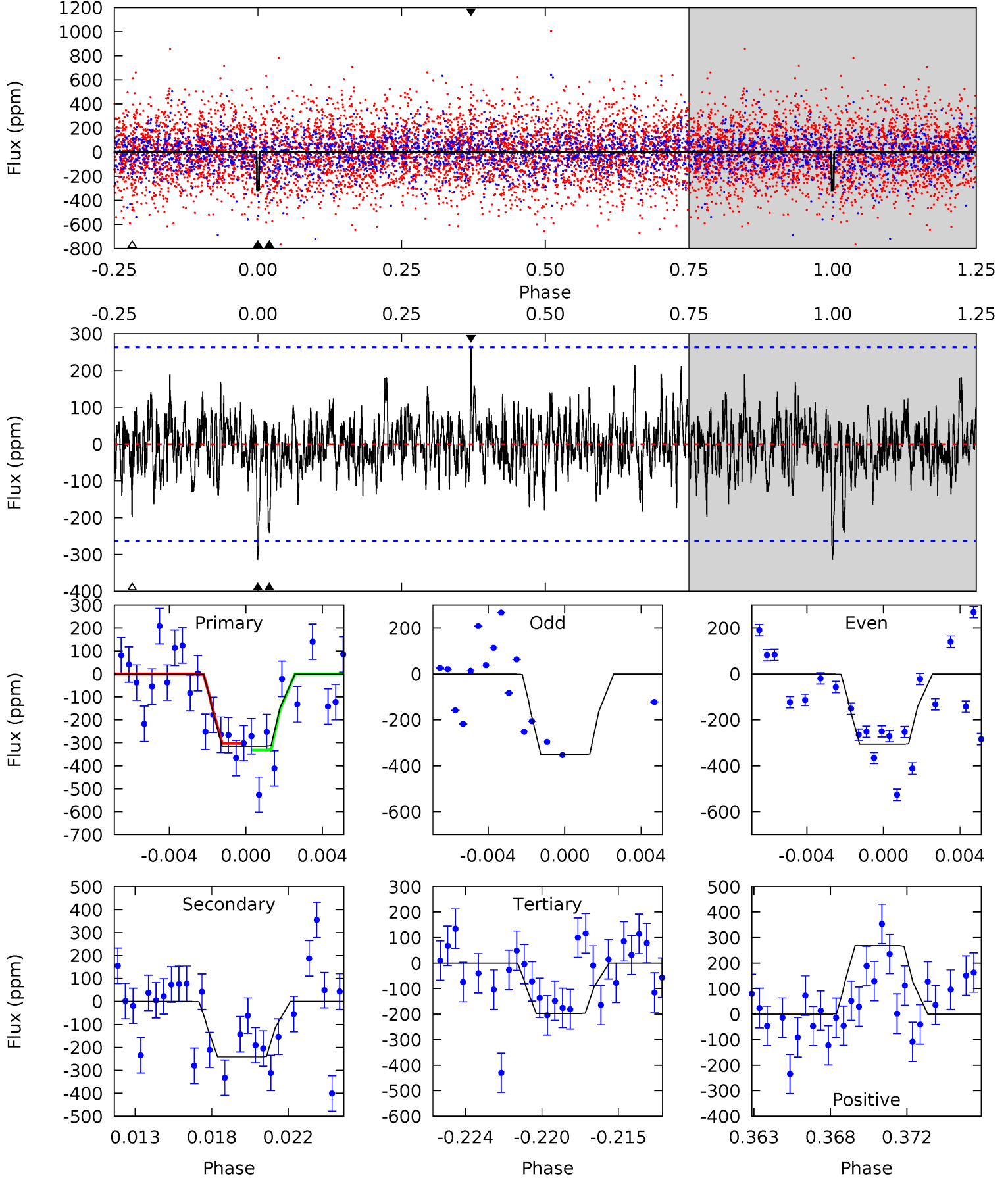
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.97	4.01	3.84	4.88	5.16	2.81	1.29	2.13	1.09	0.17	-0.87	0.81	0.86	0.45	0.29



Alt Model-Shift Uniqueness Test

010620386-10, P = 23.456442 Days, E = 117.131035 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.17	4.74	3.88	5.27	5.18	2.84	1.21	2.29	0.90	0.86	-0.53	0.39	0.70	0.46	0.26



Stellar Parameters For KIC 010620386

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6760^{+189}_{-236}	$4.187^{+0.158}_{-0.175}$	$-0.340^{+0.250}_{-0.300}$	$1.482^{+0.410}_{-0.336}$	$1.237^{+0.170}_{-0.208}$	$0.536^{+0.500}_{-0.263}$
	+3%/-3%	+4%/-4%	+74%/-88%	+28%/-23%	+14%/-17%	+93%/-49%
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 010620386-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-182 ± 45	$2.98^{+1.58}_{-1.65}$	1226^{+89}_{-76}	5753^{+3137}_{-1022}	326^{+1309}_{-192}
Alt.	-241 ± 51	$3.04^{+1.67}_{-1.51}$	1228^{+88}_{-75}	6143^{+2990}_{-1119}	411^{+1254}_{-238}

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

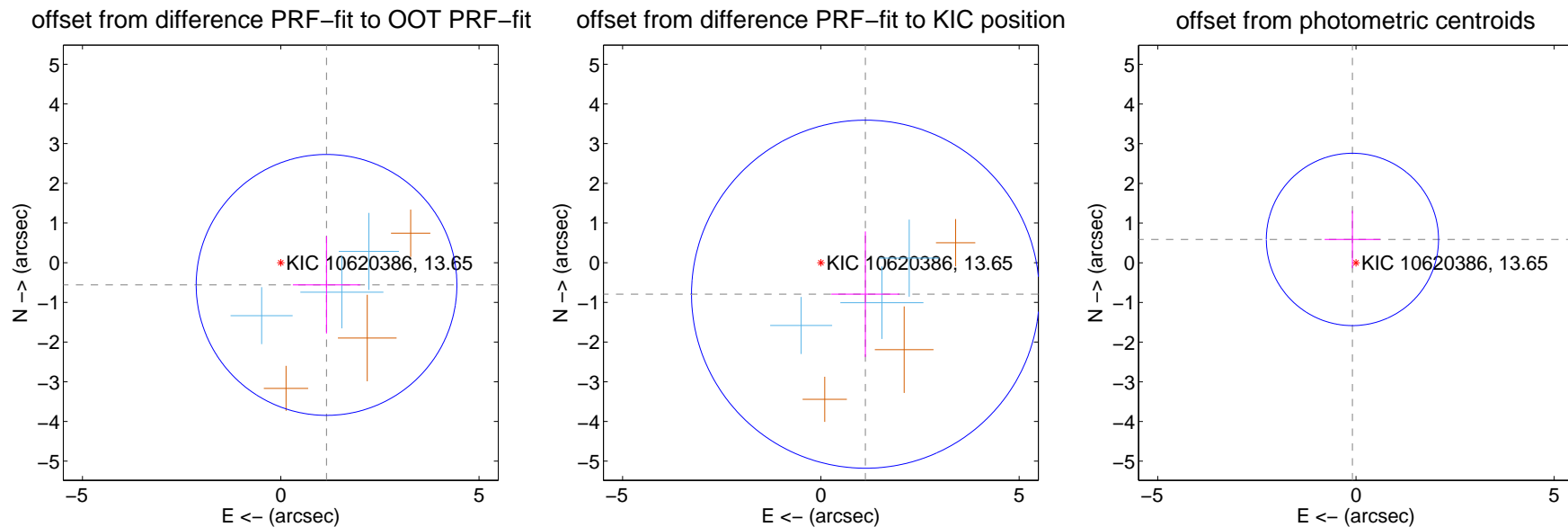
DV Centroid Data

Supplemental centroid analysis for 010620386-10. Kepler magnitude: 13.65. Transit SNR 7.54

There are 3 quarters with good PRF difference image offsets

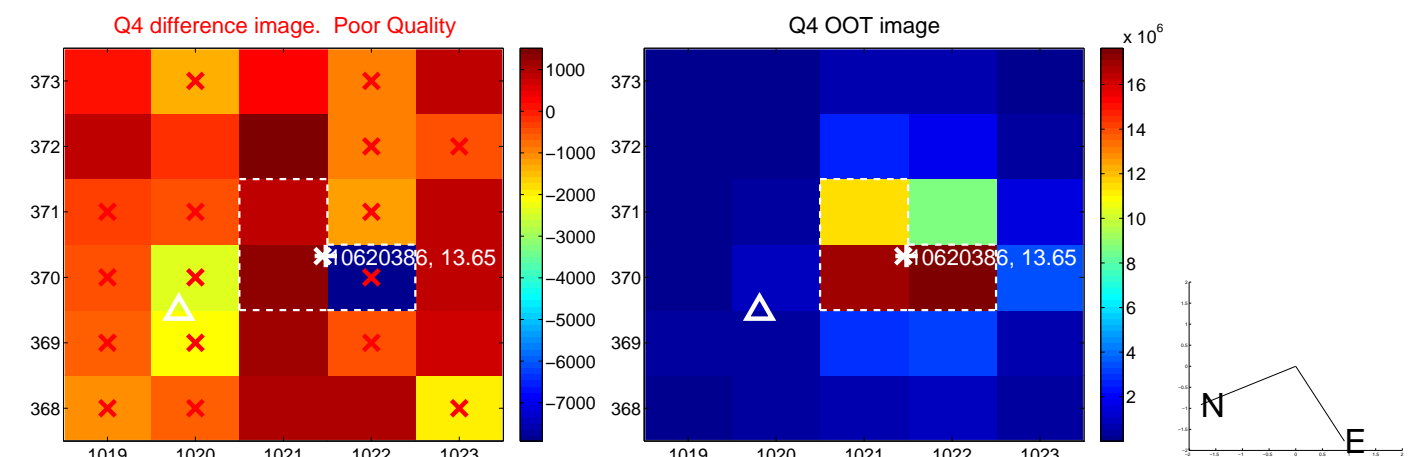
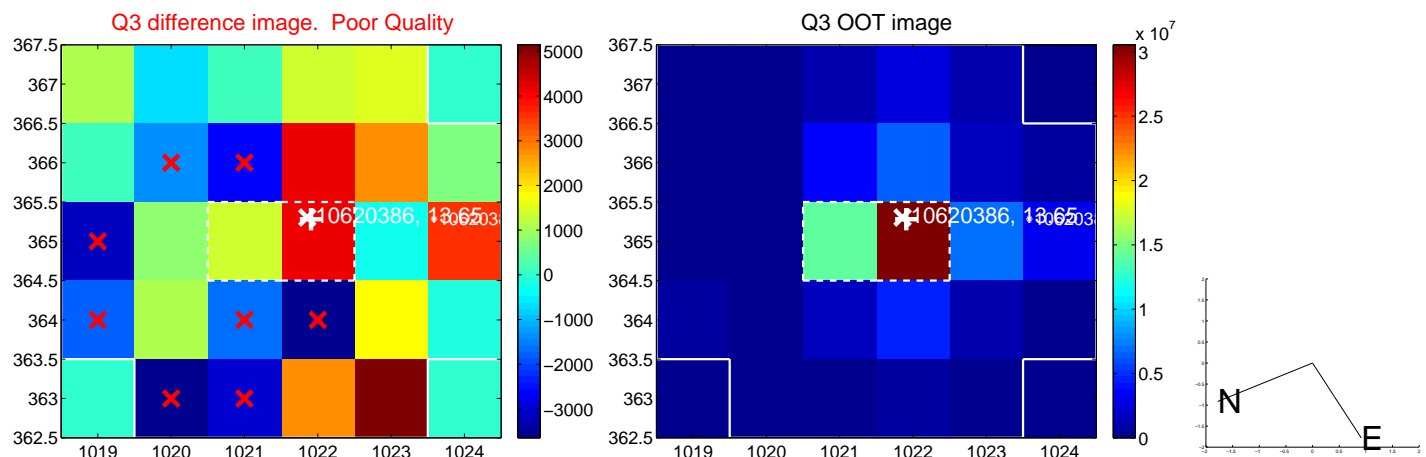
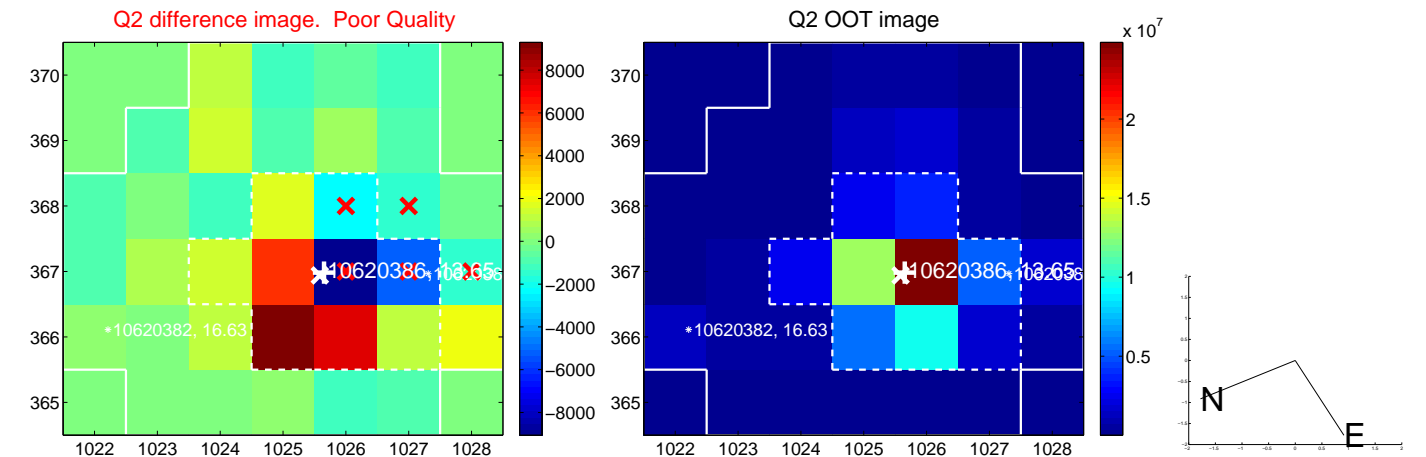
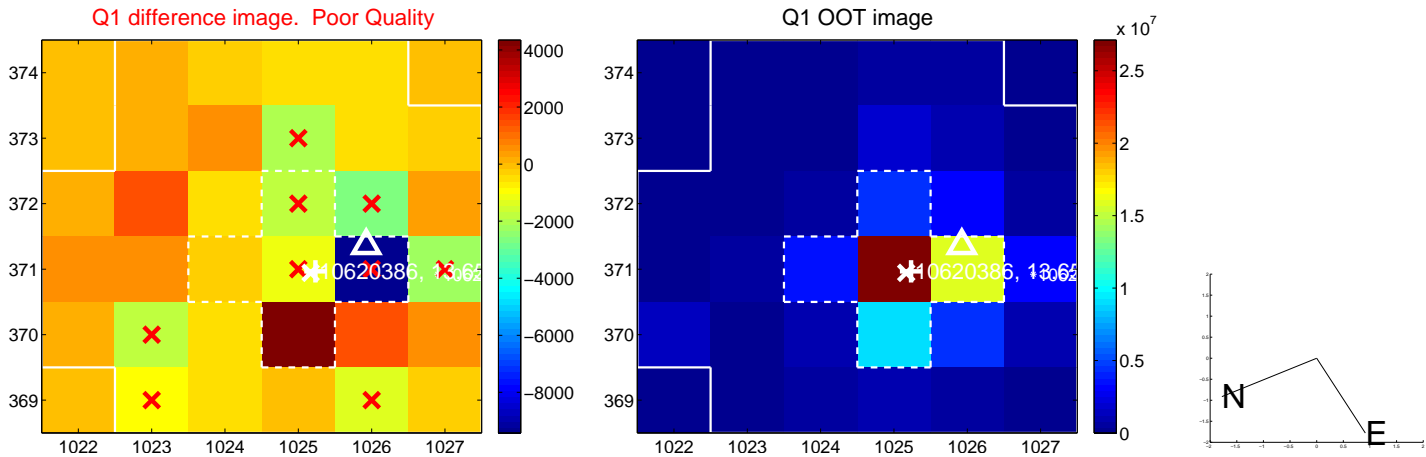
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.283 ± 1.095	1.17	-1.154 ± 0.850	-0.560 ± 1.225
PRF-fit source offset from KIC position	1.375 ± 1.461	0.94	-1.123 ± 0.859	-0.794 ± 1.581
photometric centroid source offset	0.59 ± 0.72	0.82	0.09 ± 0.70	0.59 ± 0.72

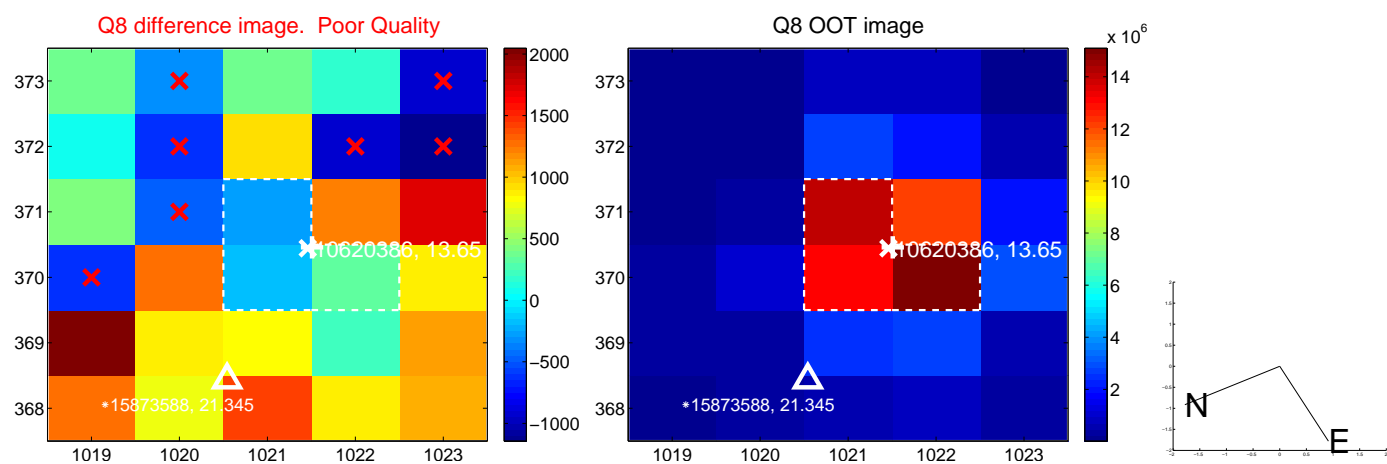
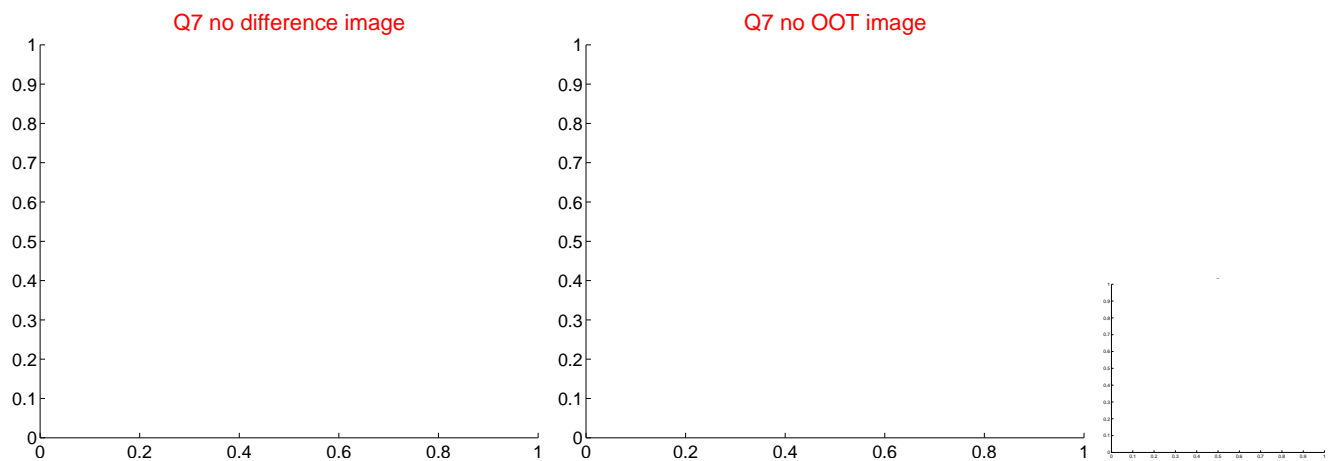
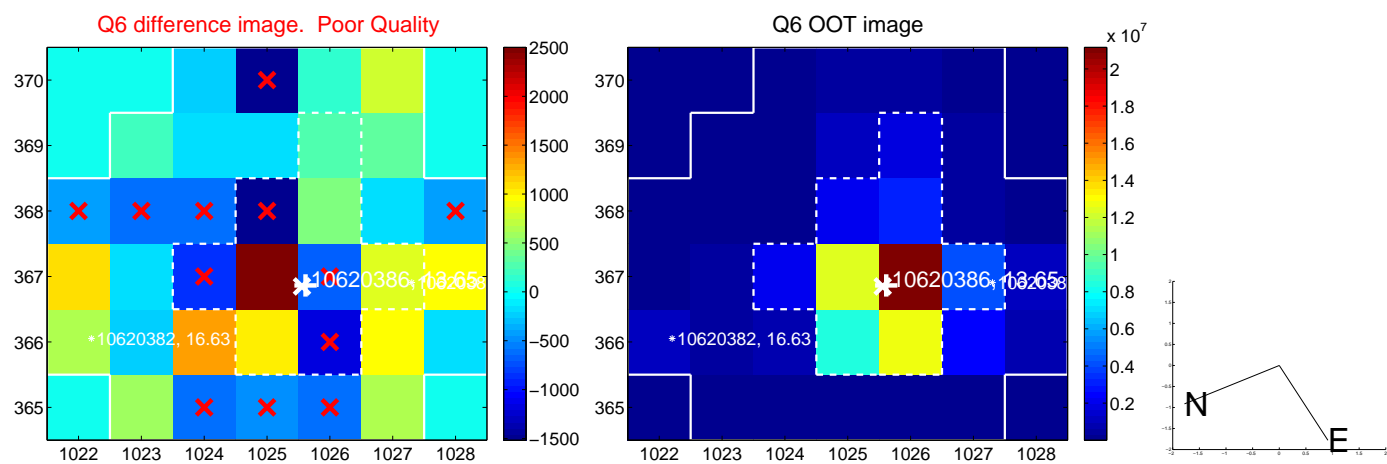
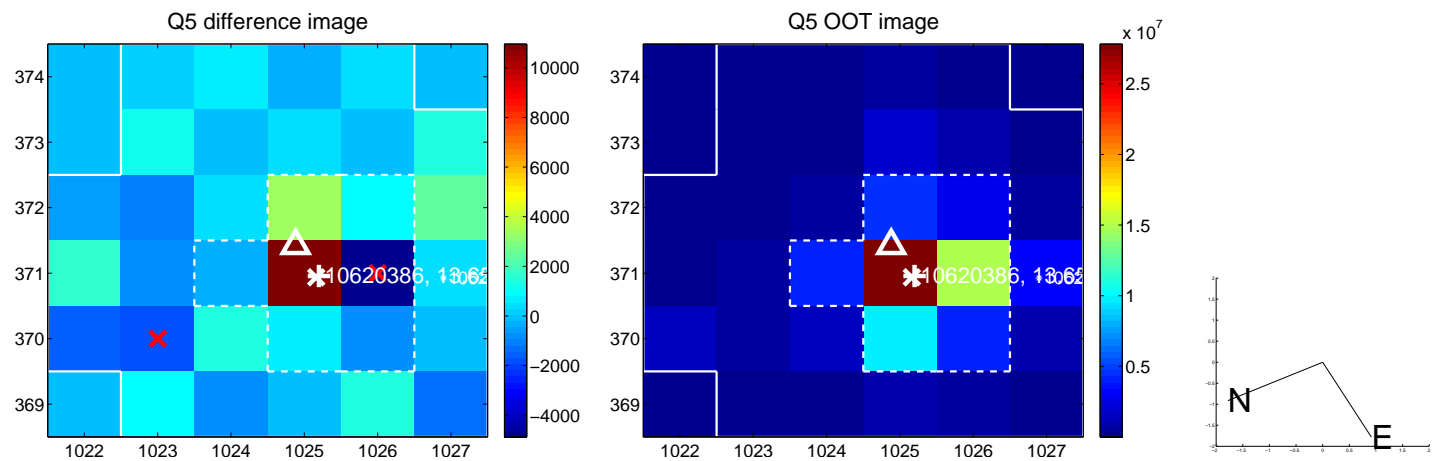


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

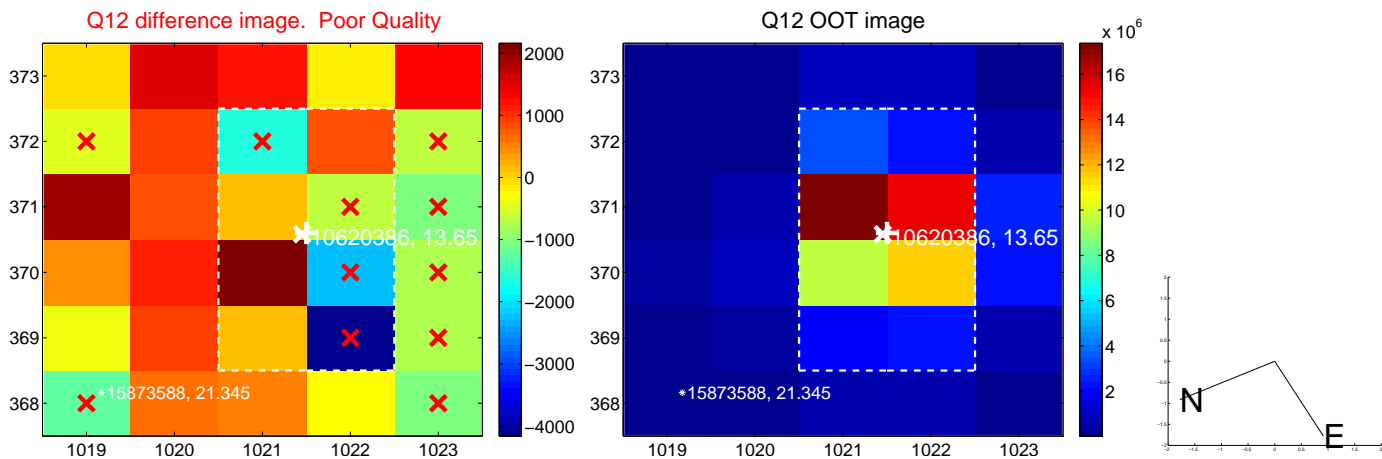
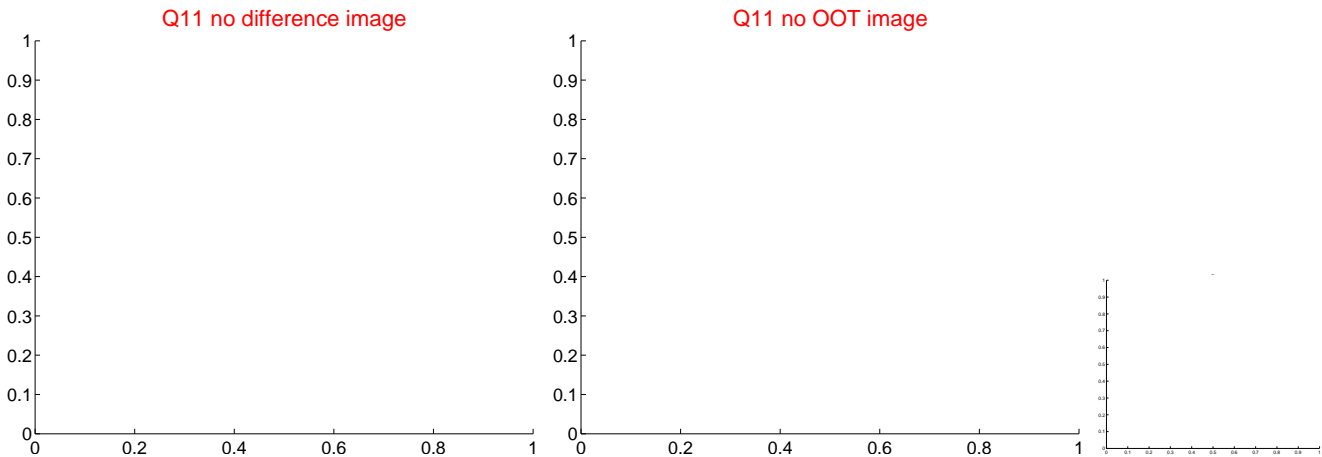
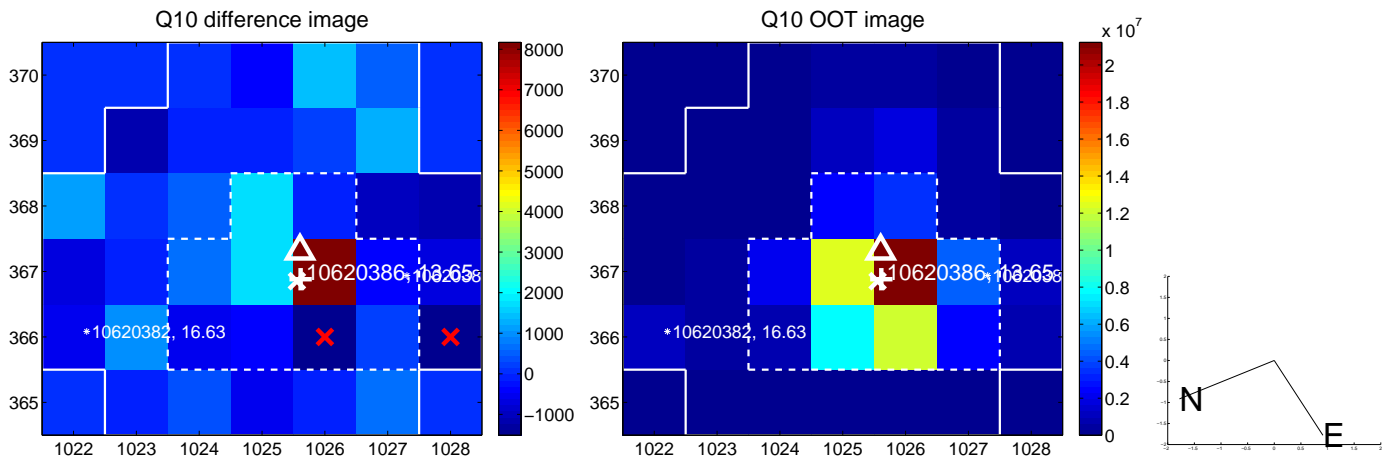
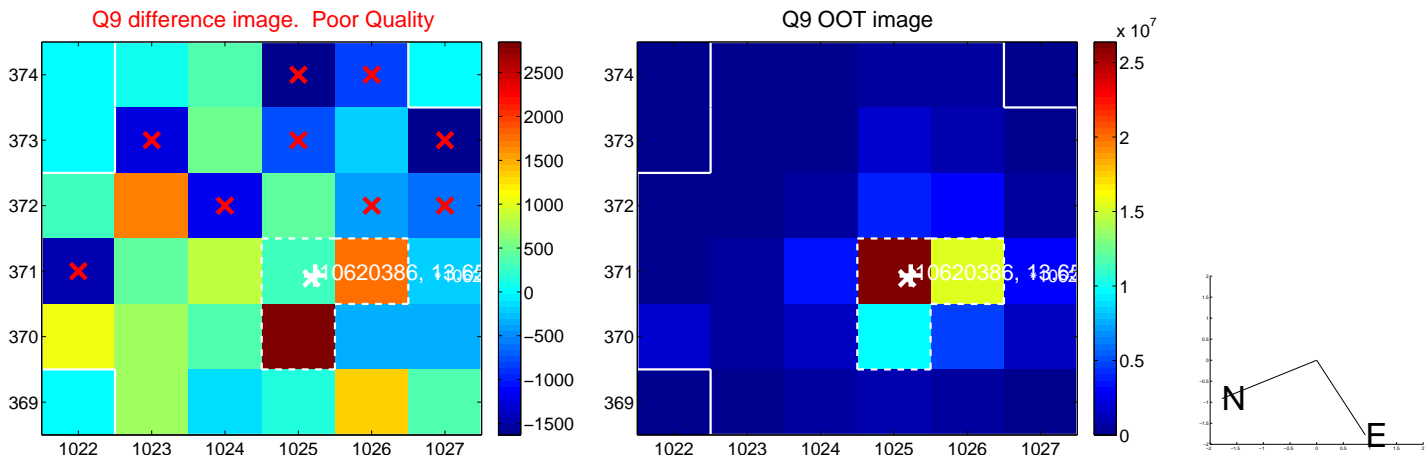
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



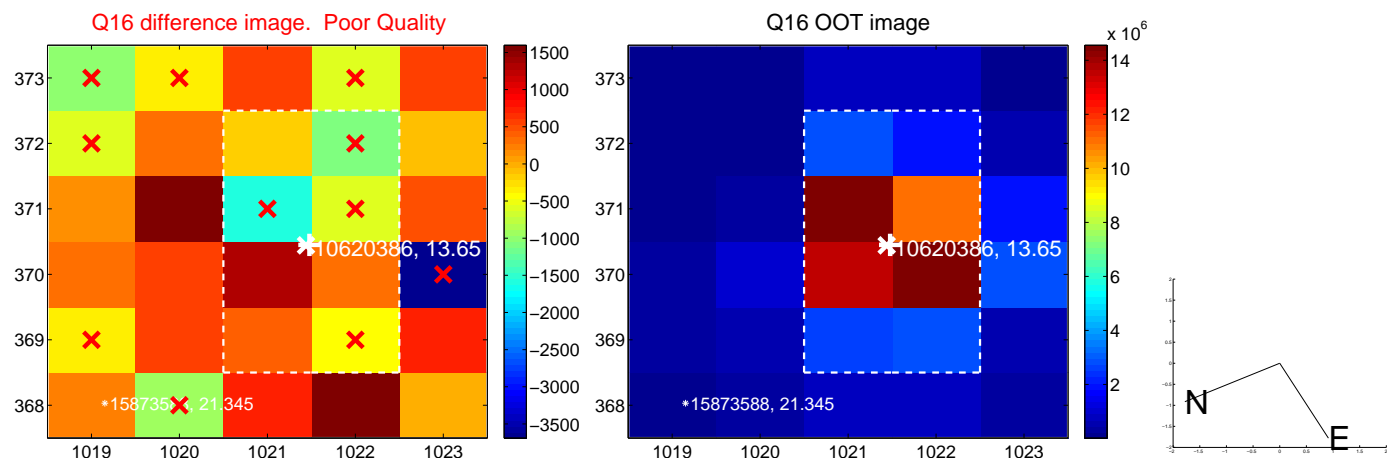
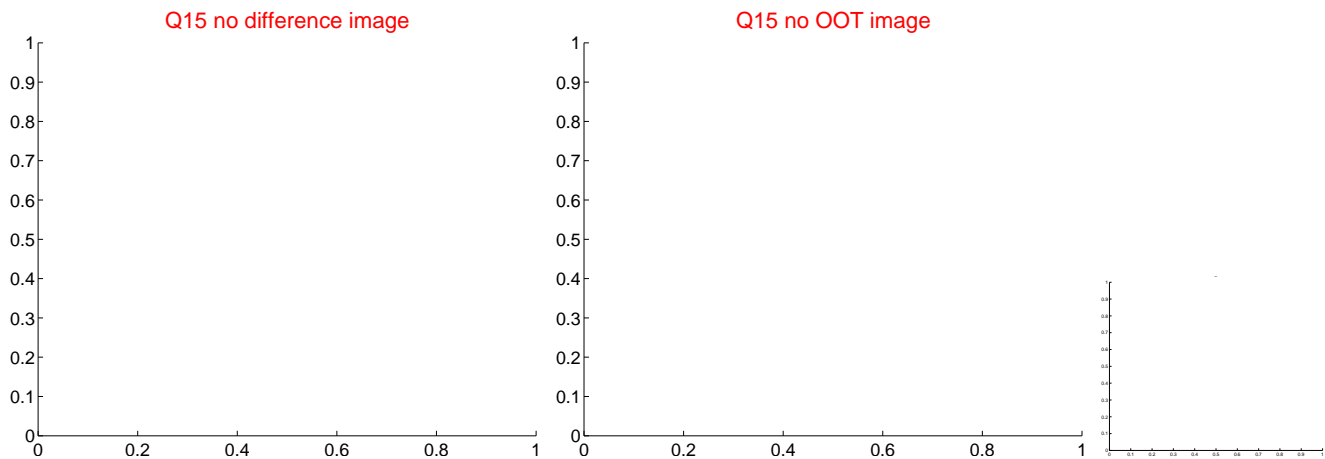
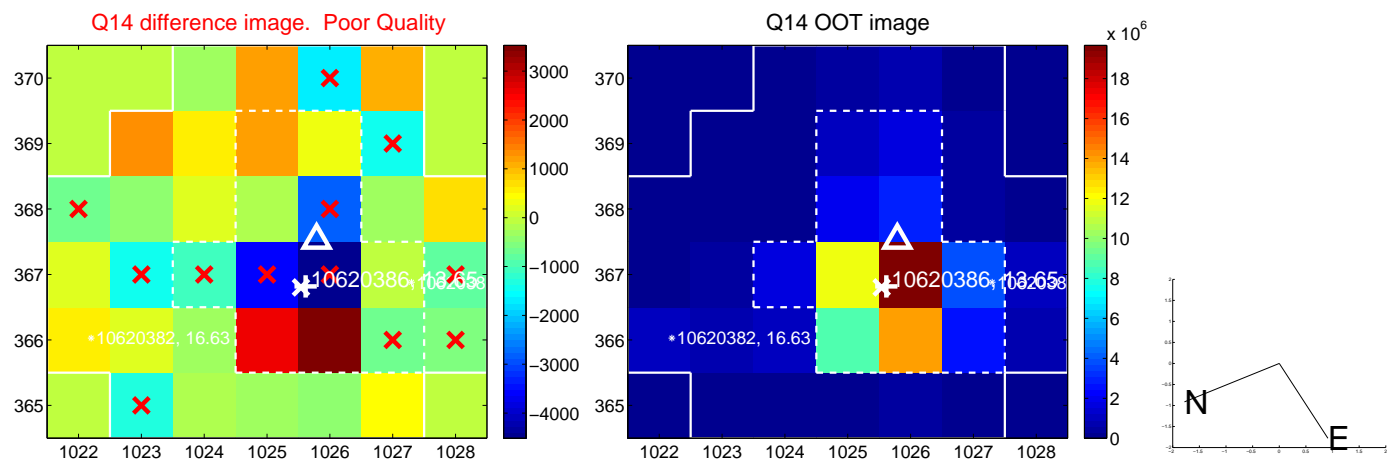
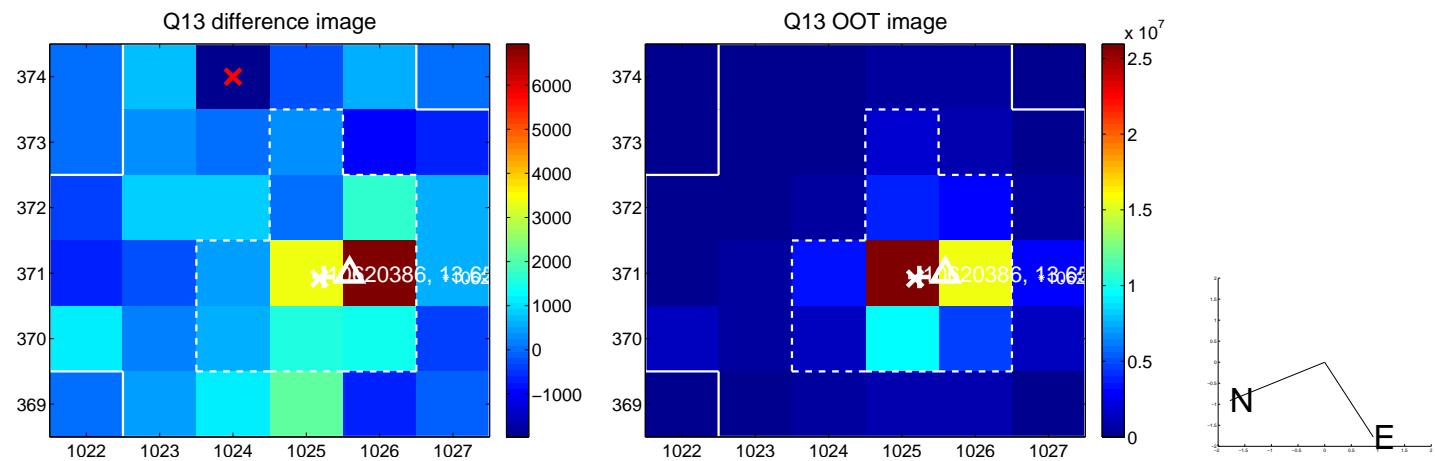
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



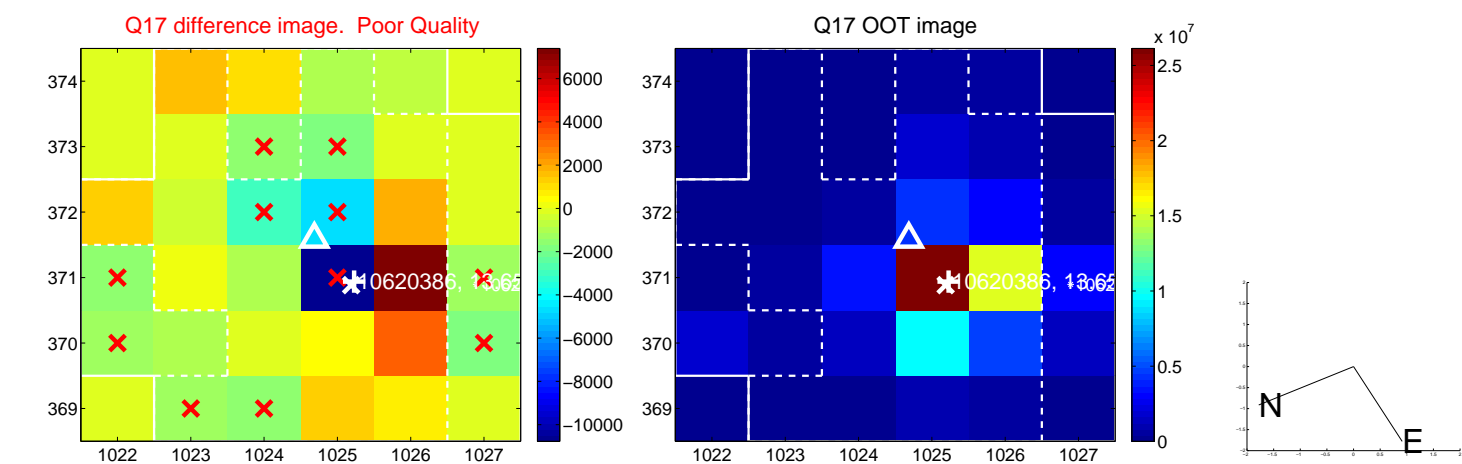
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



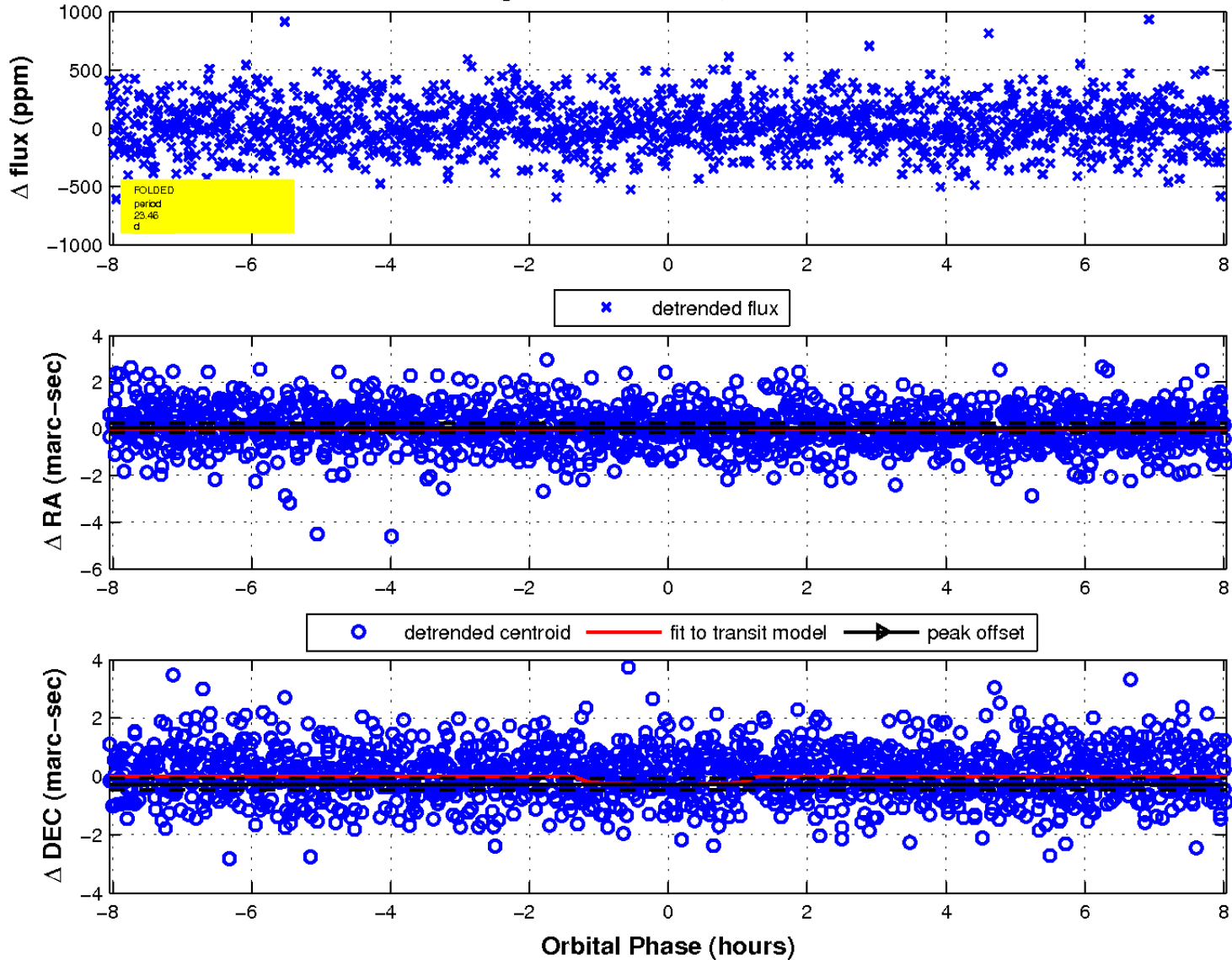
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



fluxWeightedCentroids, Planet 10 of 10



UKIRT Image

Declination

