

KIC 009120066

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})
009120066-01	OBS	No	2.308947	133.462235	41.2	12.551	7.8	9.9	1.73	5750	1.16	2438.98
009120066-02	OBS	No	232.912176	248.251506	410.6	16.047	10.9	7.0	1.73	5750	3.75	5.19
009120066-03	OBS	No	272.722309	221.862472	454.5	21.520	10.4	7.9	1.73	5750	4.04	4.21
009120066-04	OBS	No	68.179339	134.255248	138.3	17.757	9.4	3.7	1.73	5750	2.15	26.72
009120066-06	OBS	No	364.962490	173.721434	293.5	3.533	7.6	7.4	1.73	5750	3.52	2.85
009120066-07	OBS	No	281.499235	266.893089	285.3	15.289	8.8	5.0	1.73	5750	3.04	4.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009120066-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
009120066-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009120066-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009120066-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
009120066-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009120066-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

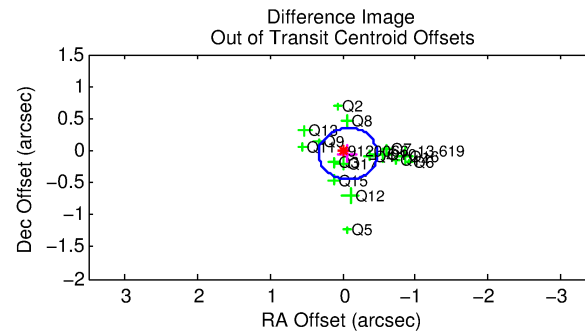
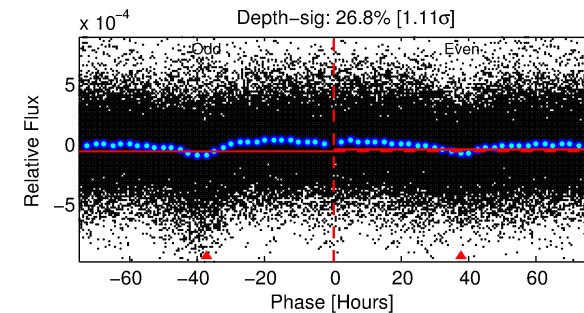
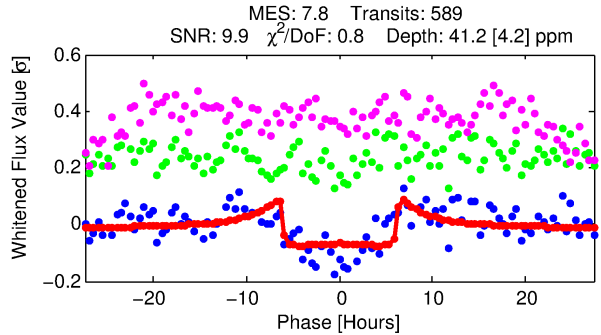
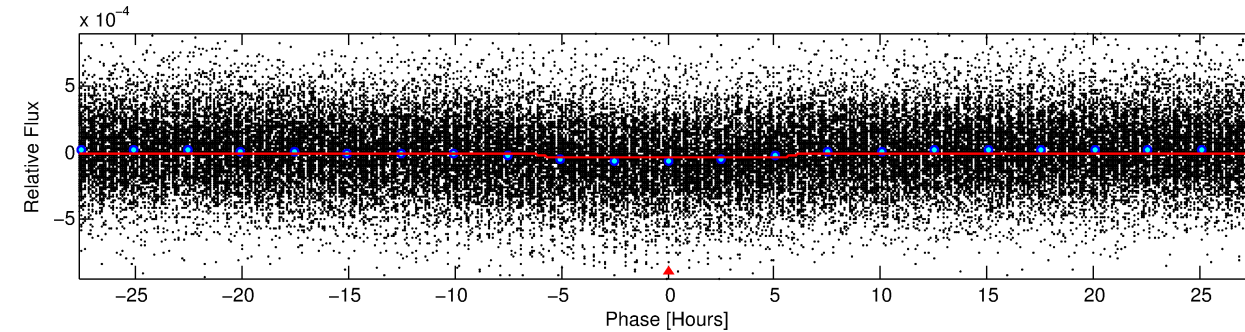
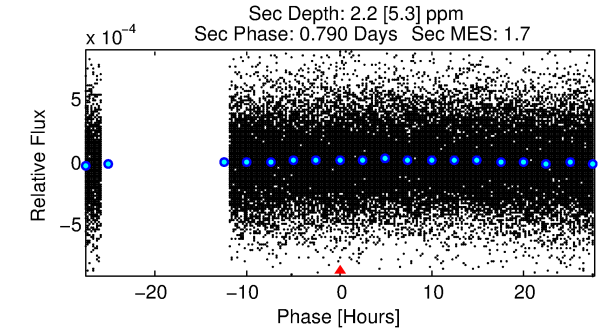
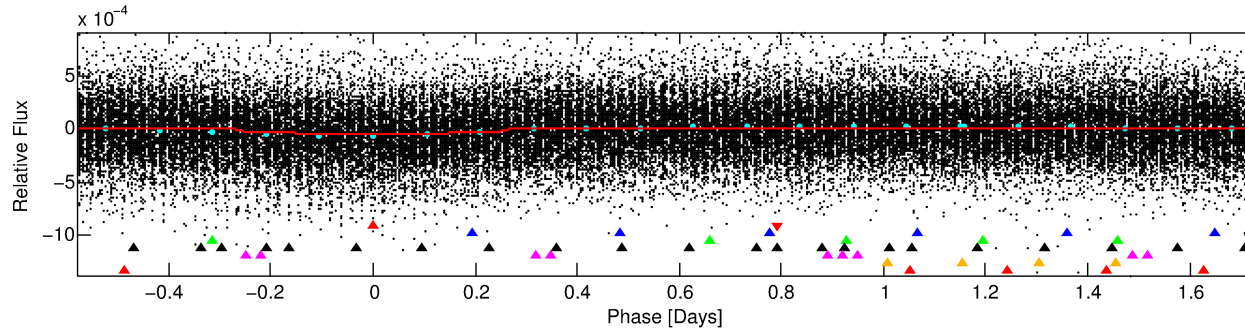
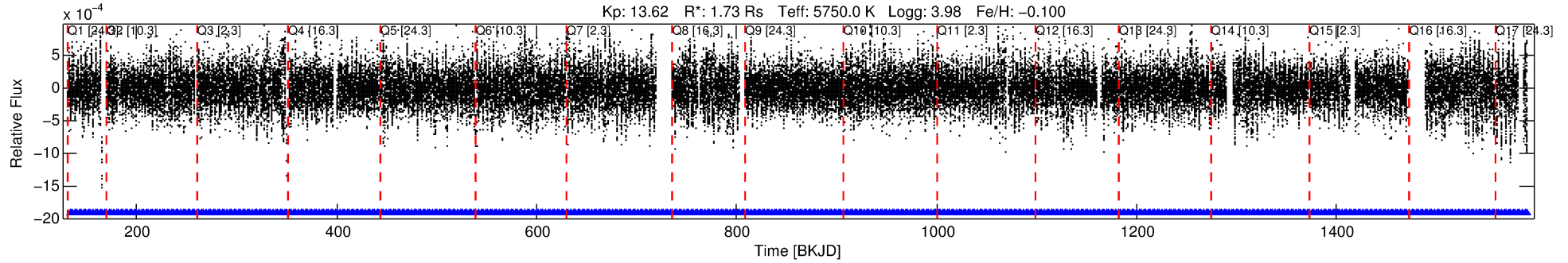
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009120066-01

No Significant Match Found

DV One-Page Summary

KIC: 9120066 Candidate: 1 of 7 Period: 2.309 d



DV Fit Results:

Period = 2.30895 [0.00002] d
Epoch = 133.4622 [0.0050] BKJD
Rp/R* = 0.0062 [0.0022]
a/R* = 1.36 [1.01]
b = 0.62 [1.61]
Seff = 2438.98 [1829.79]
Teq = 1792 [336] K
Rp = 1.16 [0.65] Re
a = 0.0346 [0.0154] AU
Ag = 1.07 [2.84] [0.02σ]
Teffp = 2818 [1798] K [0.56σ]

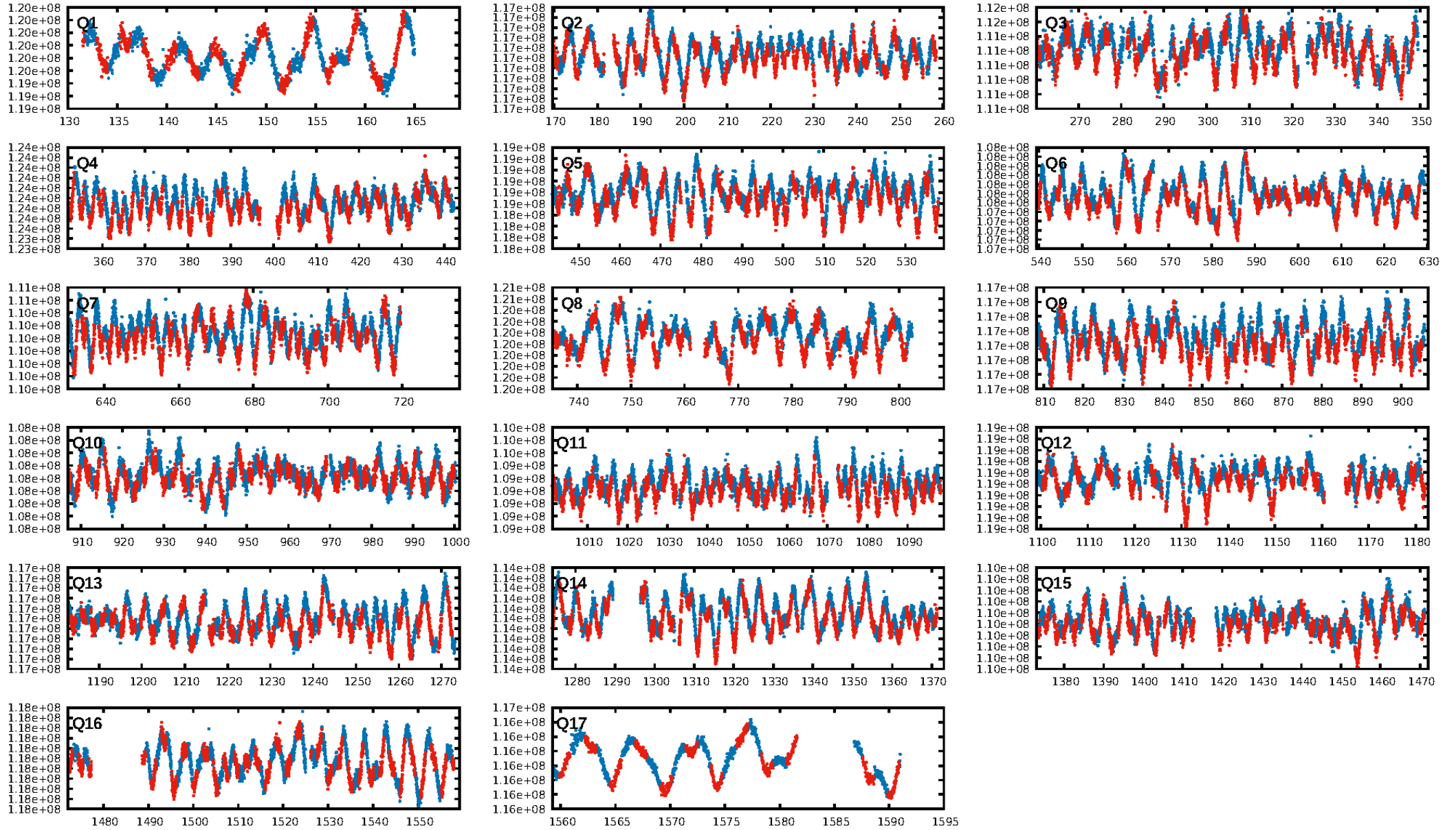
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [72.70σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.38e-11
RollingBand-fgt: 1.00 [563/563]
GhostDiagnostic-chr: 1.033
Centroid-sig: 0.0%
Centroid-so: 1.243 arcsec [2.32σ]
OotOffset-rm: 0.089 arcsec [0.67σ]
KicOffset-rm: 0.282 arcsec [2.12σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [17/17]

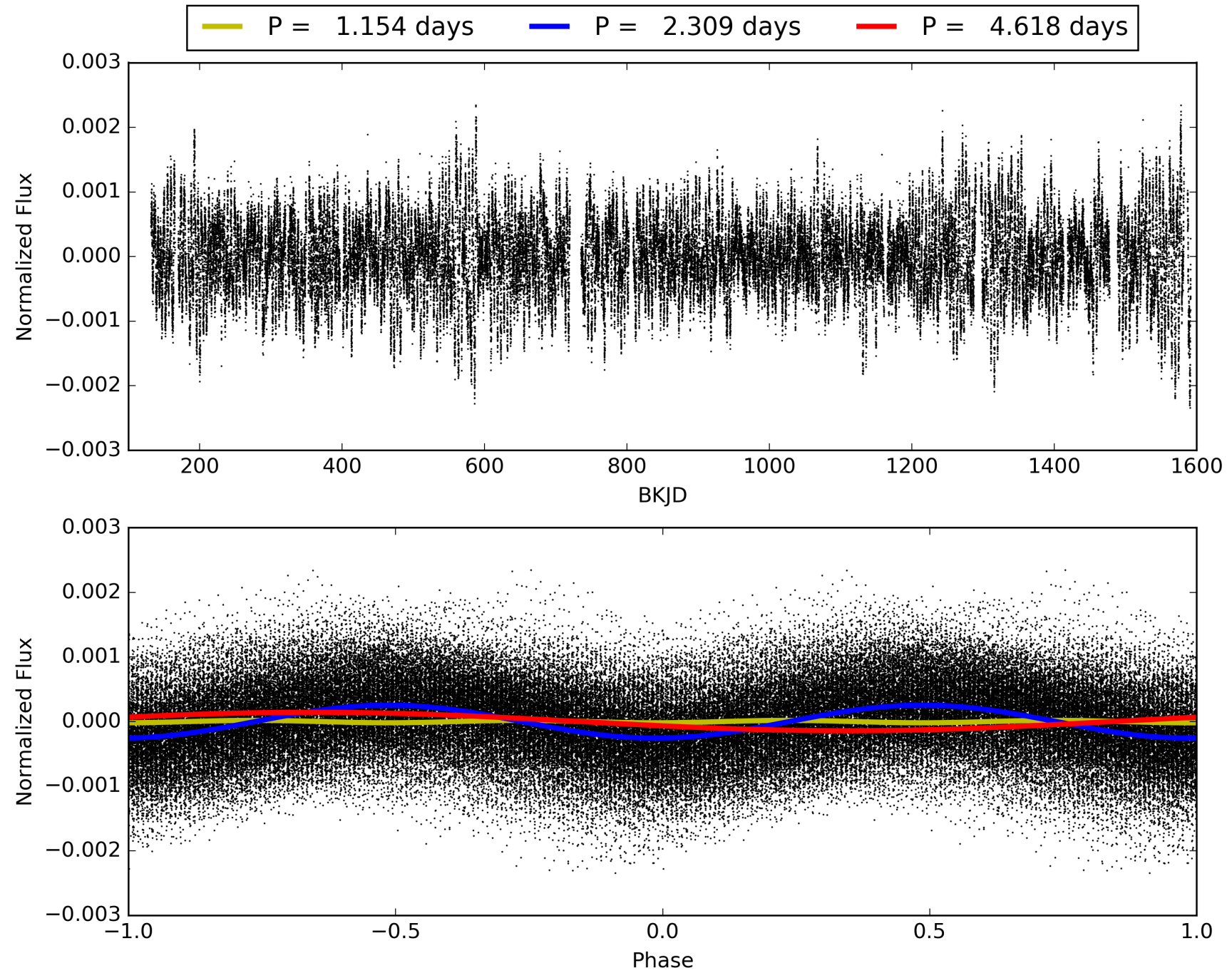
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:12:29 Z

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

TCE 009120066-01, PDC Light Curves

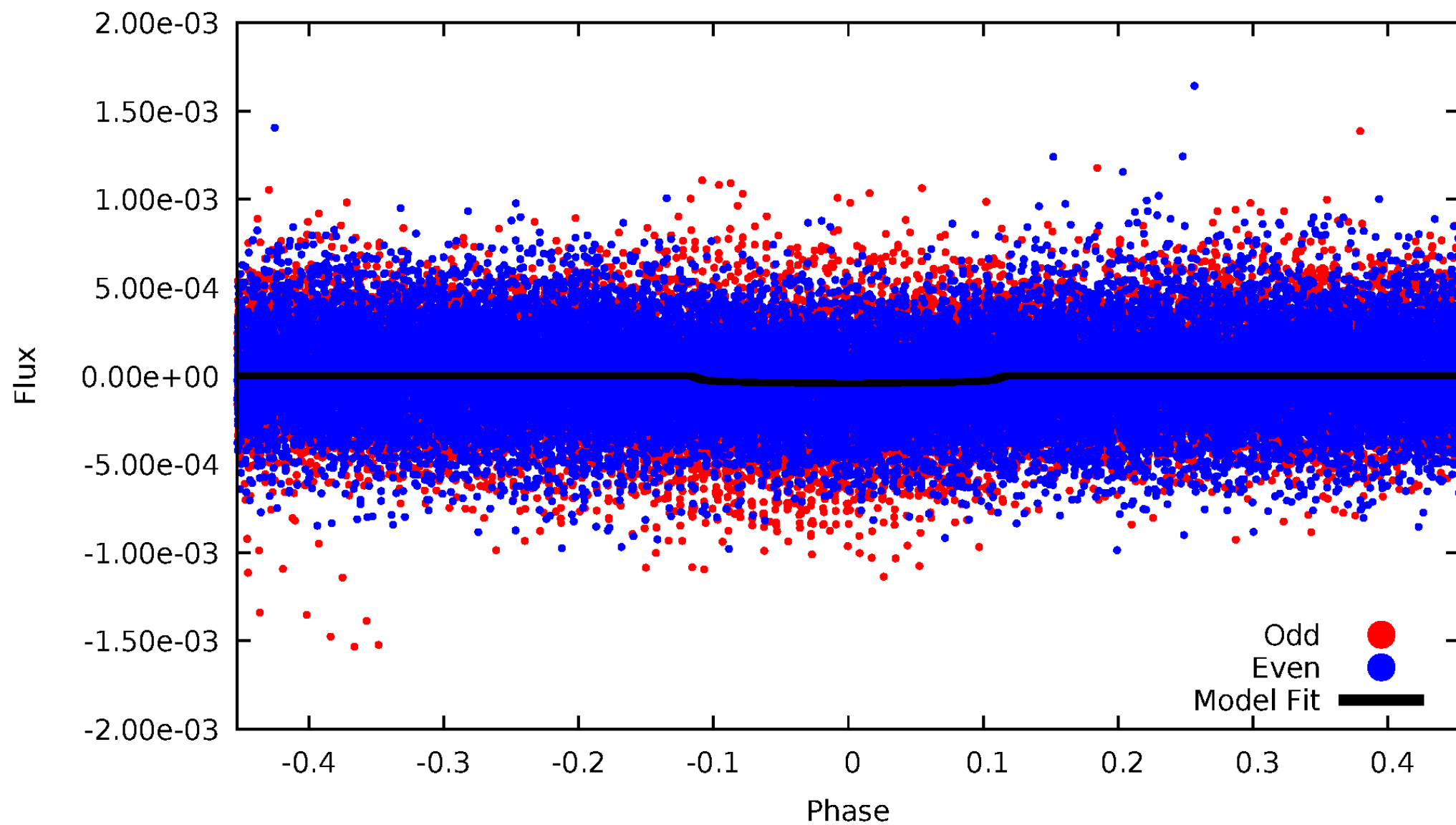


TCE 009120066-01



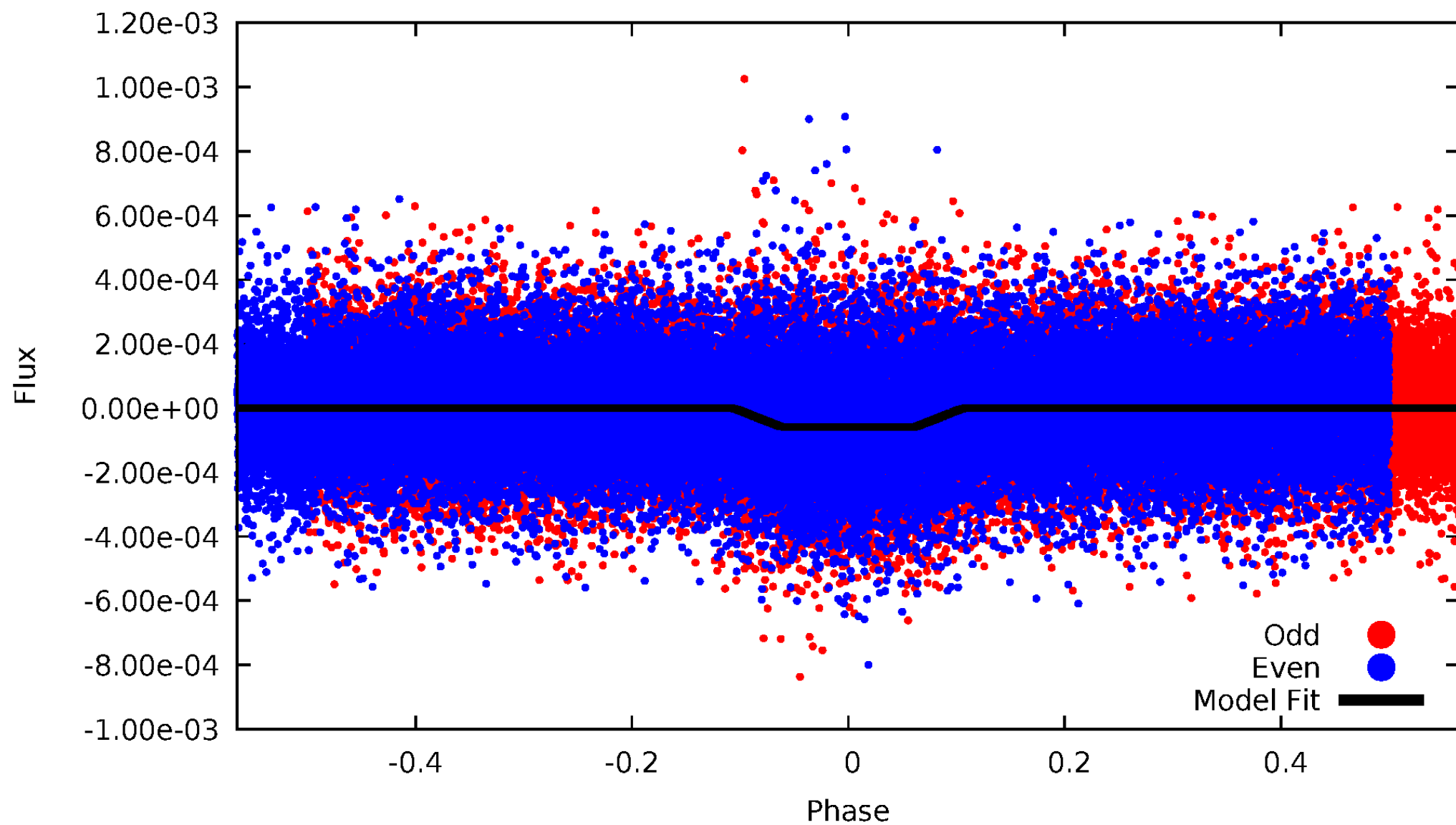
DV Odd/Even

TCE 009120066-01



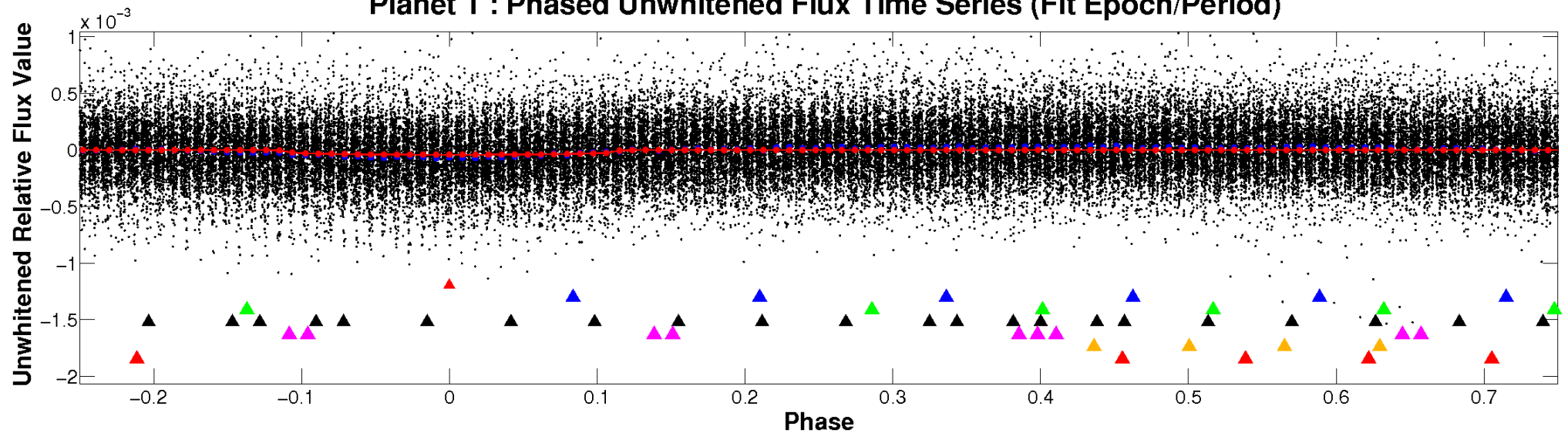
ALT Odd/Even

TCE 009120066-01

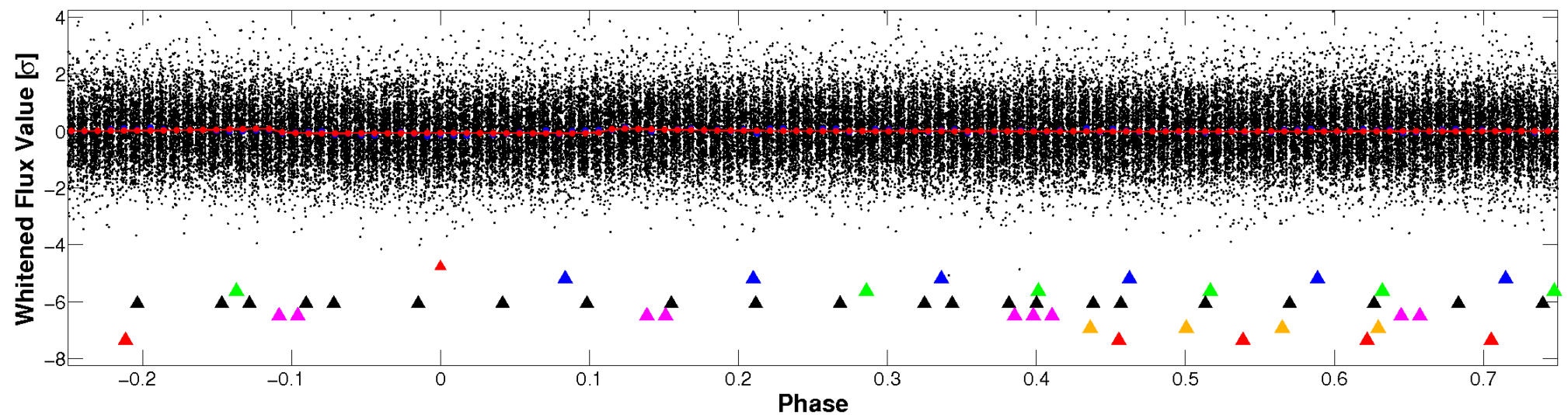


Non-Whitened Vs. Whitened Light Curve

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

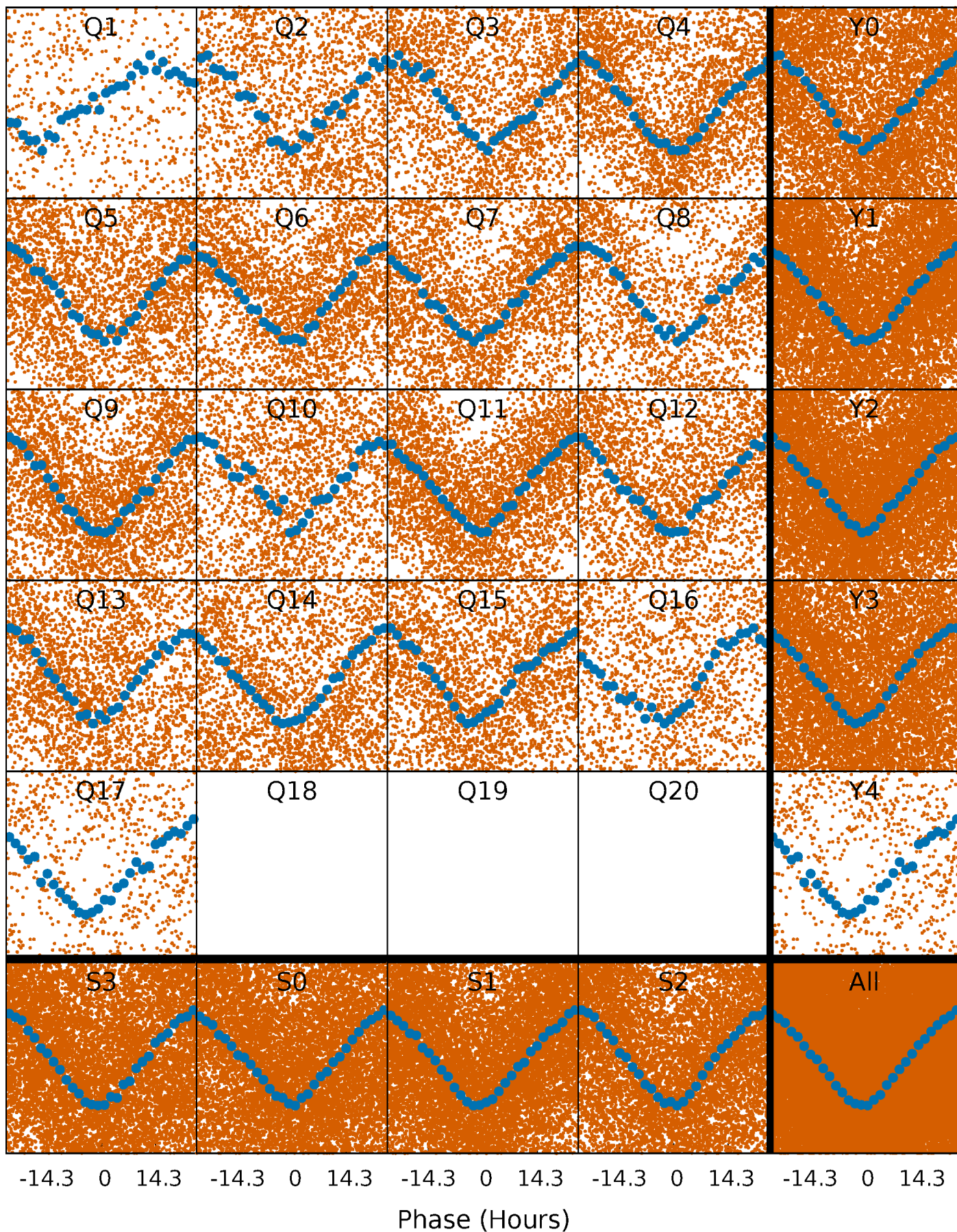


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



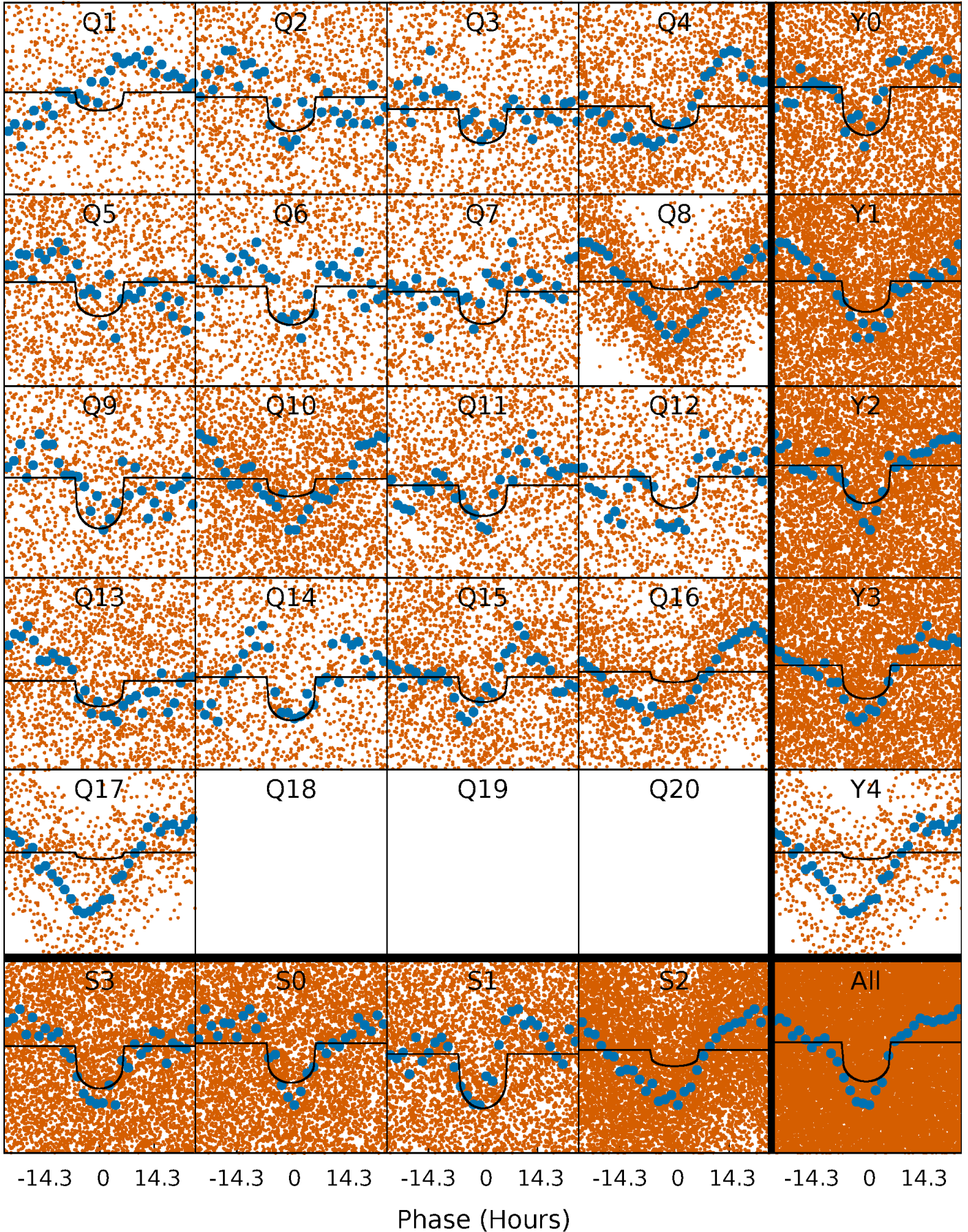
PDC Quarter-Phased Transit Curves

TCE 009120066-01 P= 2.308947 Days $T_0=133.462235$ (BKJD)



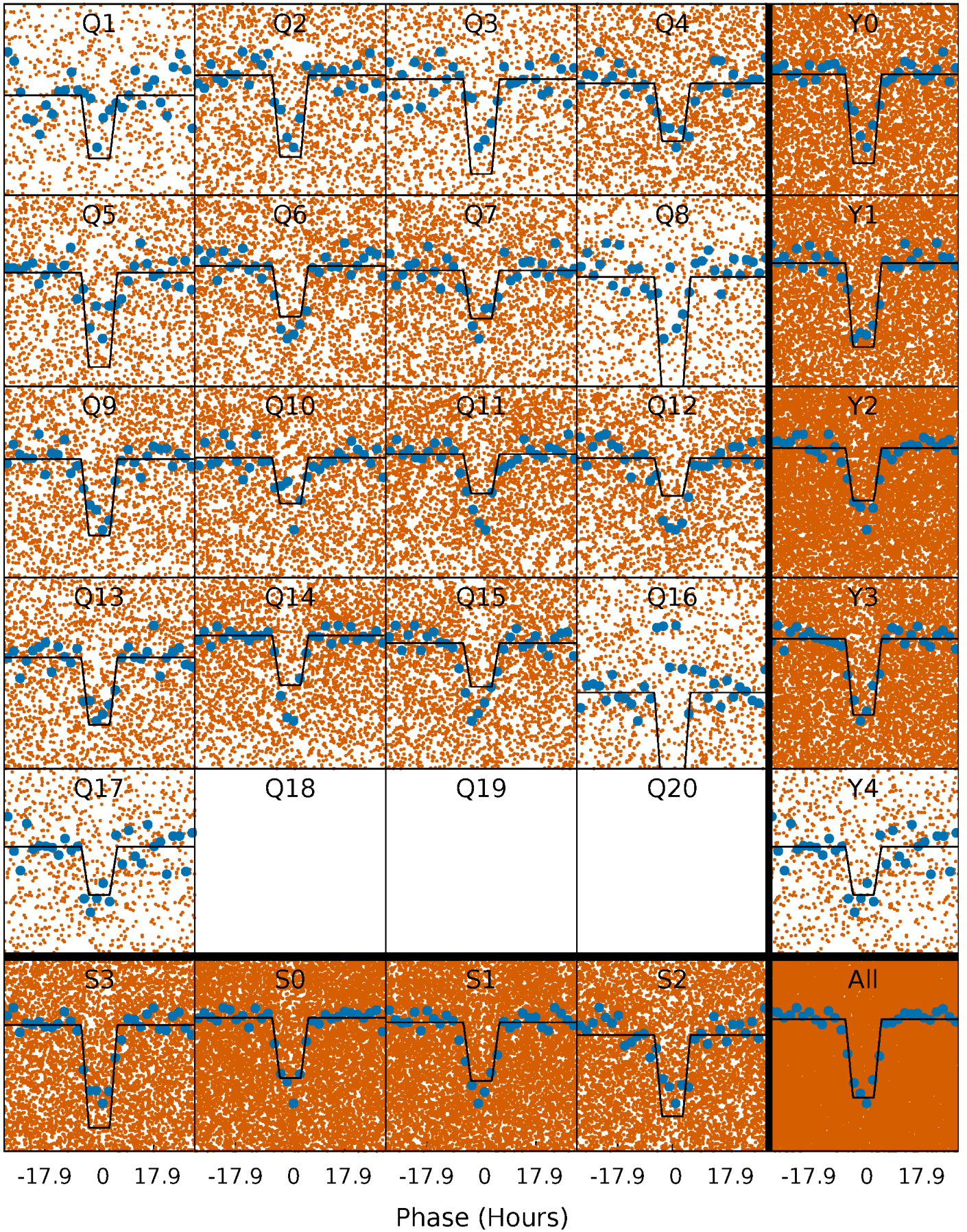
DV Quarter-Phased Transit Curves

TCE 009120066-01 P= 2.308947 Days $T_0=133.462235$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

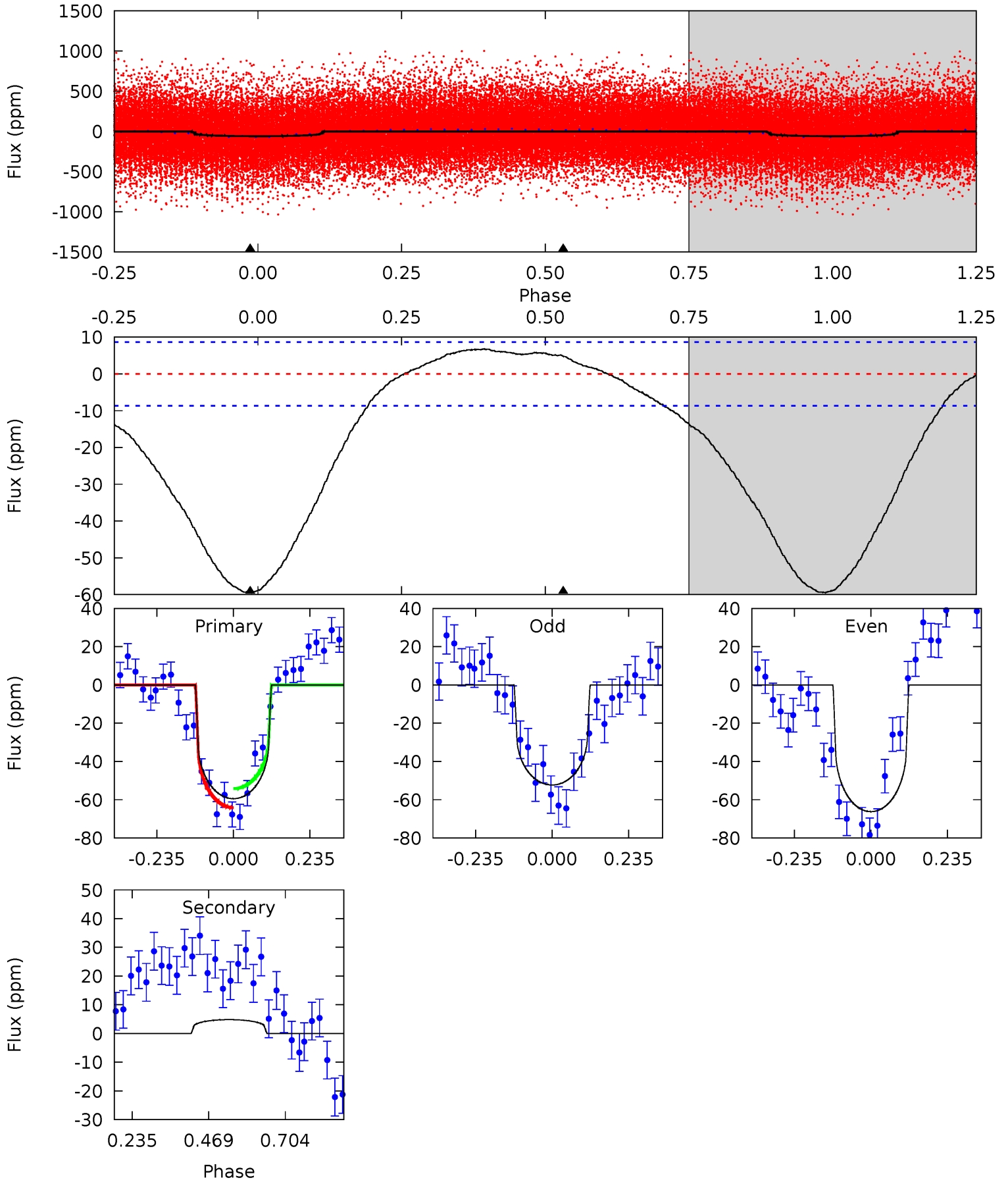
TCE 009120066-01 P= 2.308832 Days $T_0=133.478339$ (BKJD)



DV Model-Shift Uniqueness Test

009120066-01, P = 2.308947 Days, E = 131.153288 Days

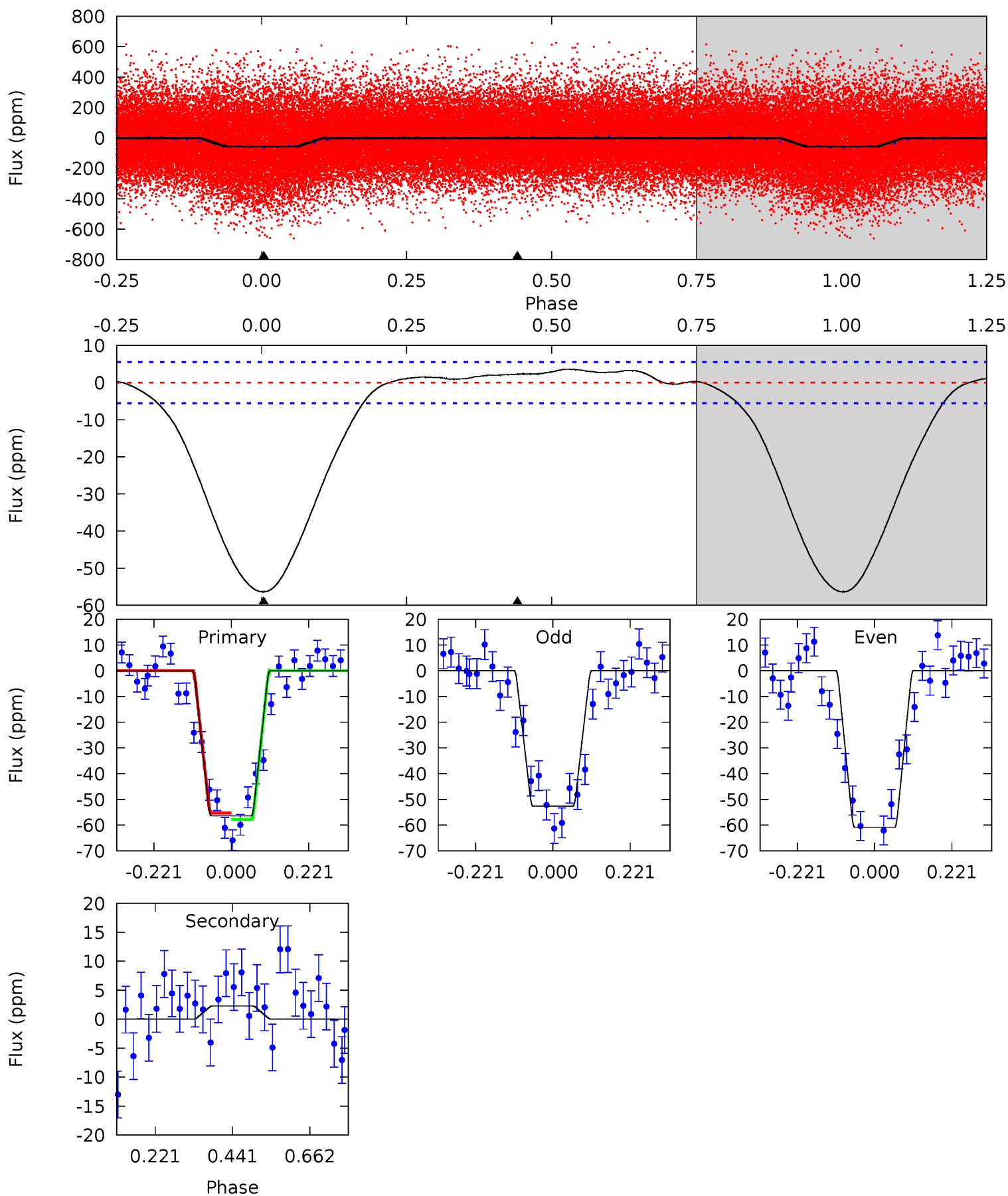
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.1	-2.44	0	0	4.38	1.19	2.32	30.1	30.1	-2.44	-2.44	3.56	1.26	0.10	2.54



Alt Model-Shift Uniqueness Test

009120066-01, P = 2.308832 Days, E = 131.169507 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.9	-1.81	0	0	4.40	1.23	0.64	44.9	44.9	-1.81	-1.81	3.27	0.94	0.06	0.98



Stellar Parameters For KIC 009120066

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5750^{+190}_{-173}	$3.979^{+0.443}_{-0.148}$	$-0.100^{+0.300}_{-0.300}$	$1.727^{+0.402}_{-0.746}$	$1.037^{+0.140}_{-0.155}$	$0.284^{+1.102}_{-0.115}$
	+3%/-3%	+11%/-4%	+300%/-300%	+23%/-43%	+14%/-15%	+388%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009120066-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	5 ± 2	$1.06^{+0.46}_{-0.42}$	2457^{+193}_{-285}	-3858^{+419}_{-763}	$-2.714^{+1.632}_{-5.531}$
Alt.	2 ± 1	$1.37^{+0.52}_{-0.44}$	2480^{+180}_{-275}	-3299^{+280}_{-349}	$-0.762^{+0.504}_{-1.063}$

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

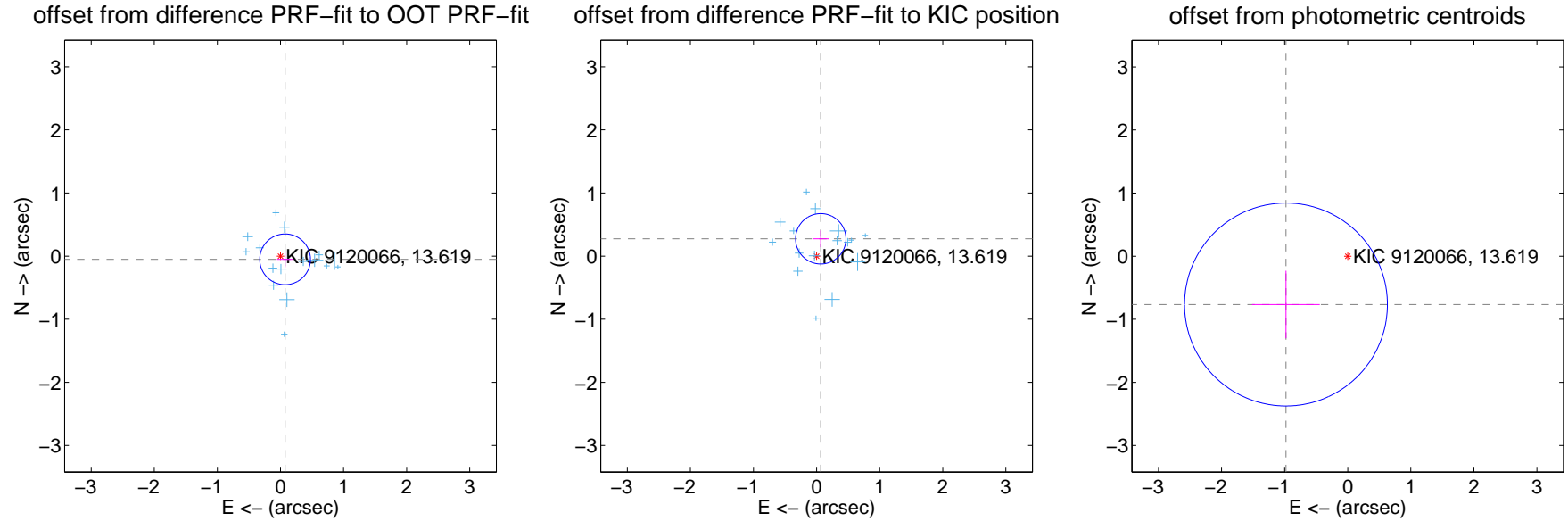
DV Centroid Data

Supplemental centroid analysis for 009120066-01. Kepler magnitude: 13.62. Transit SNR 9.85

There are 16 quarters with good PRF difference image offsets

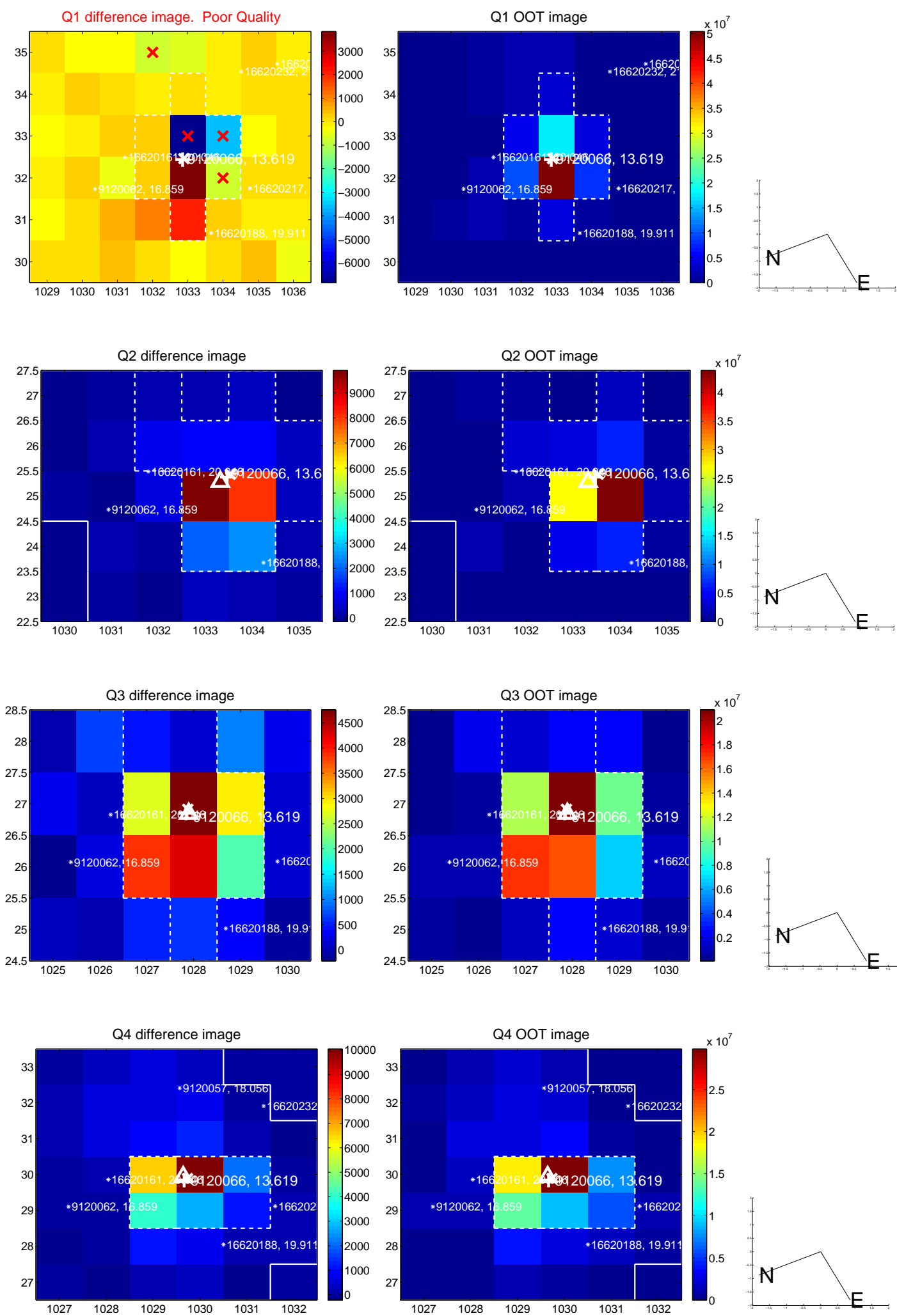
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.089 ± 0.134	0.67	-0.074 ± 0.127	-0.051 ± 0.126
PRF-fit source offset from KIC position	0.282 ± 0.133	2.12	-0.066 ± 0.130	0.275 ± 0.133
photometric centroid source offset	1.24 ± 0.54	2.32	0.98 ± 0.54	-0.77 ± 0.53

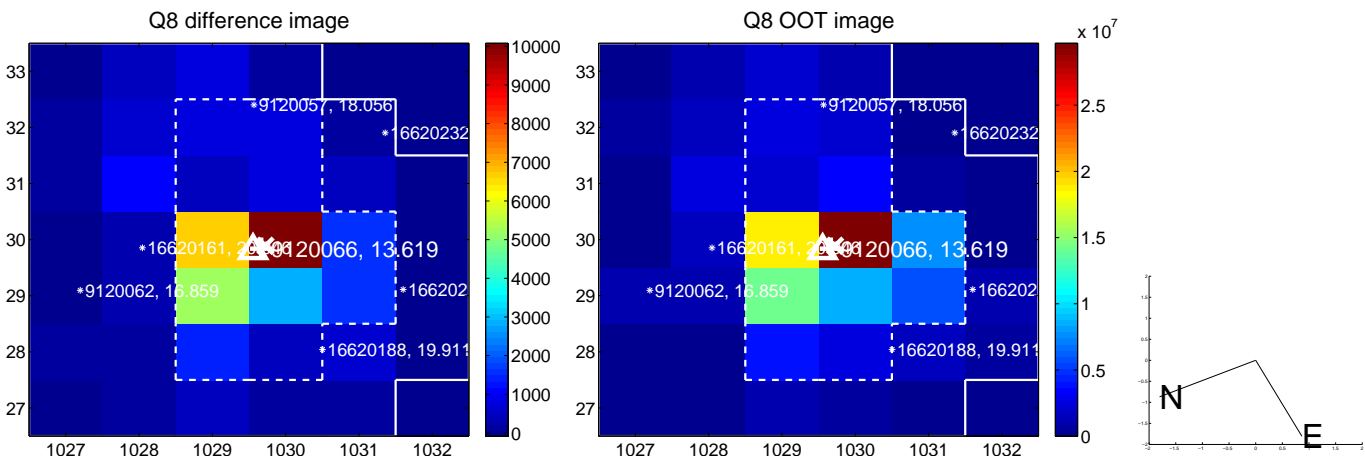
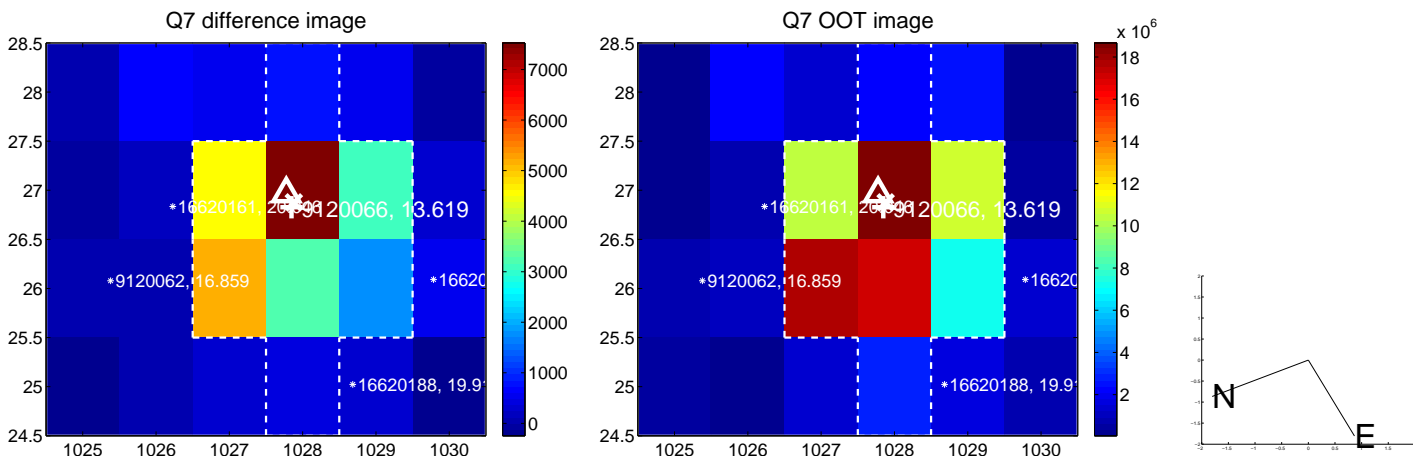
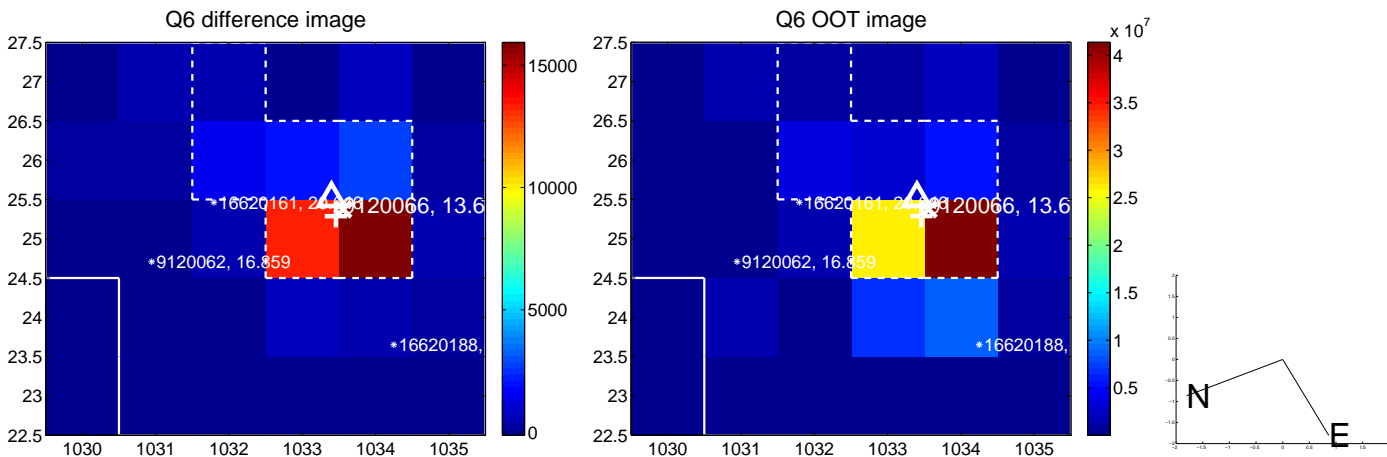
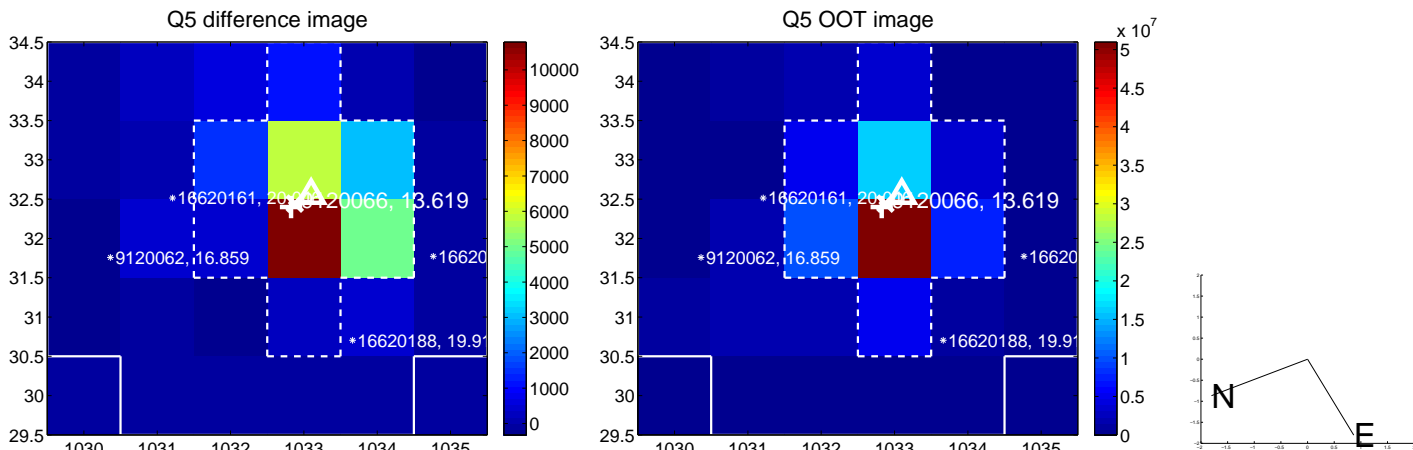


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

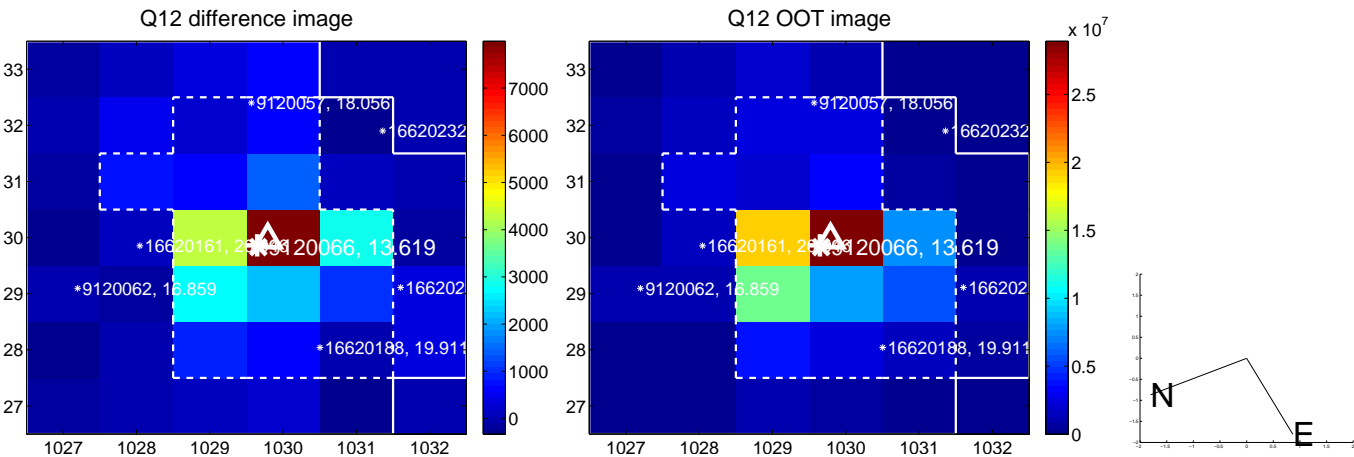
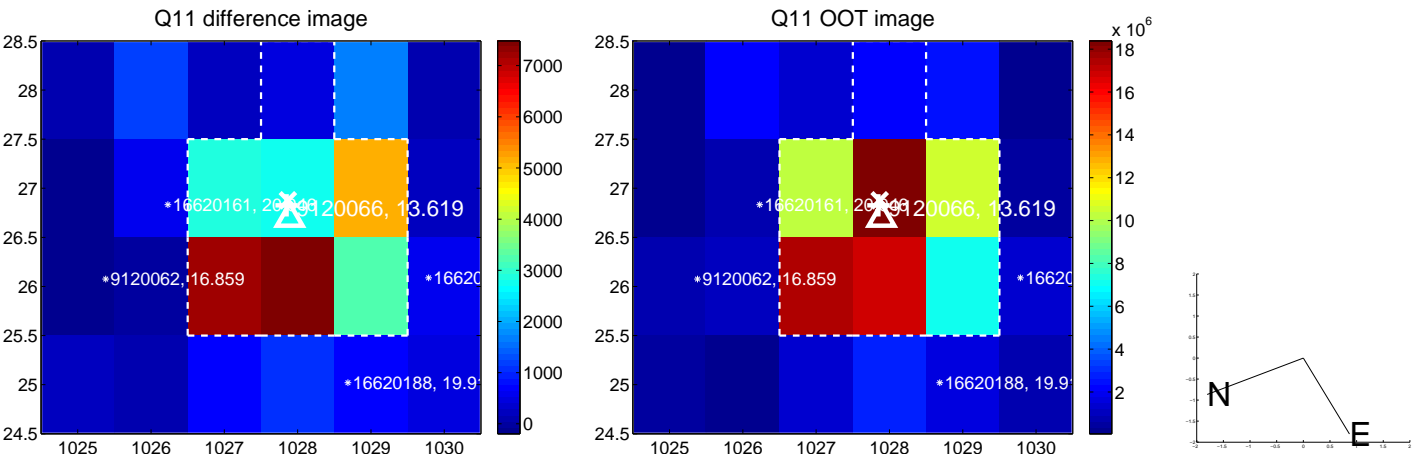
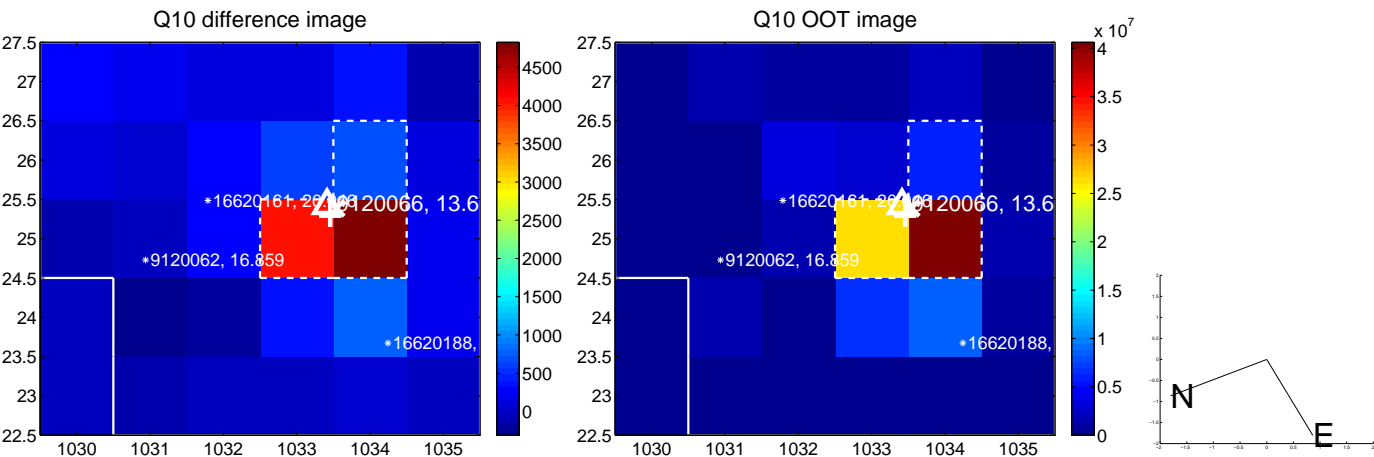
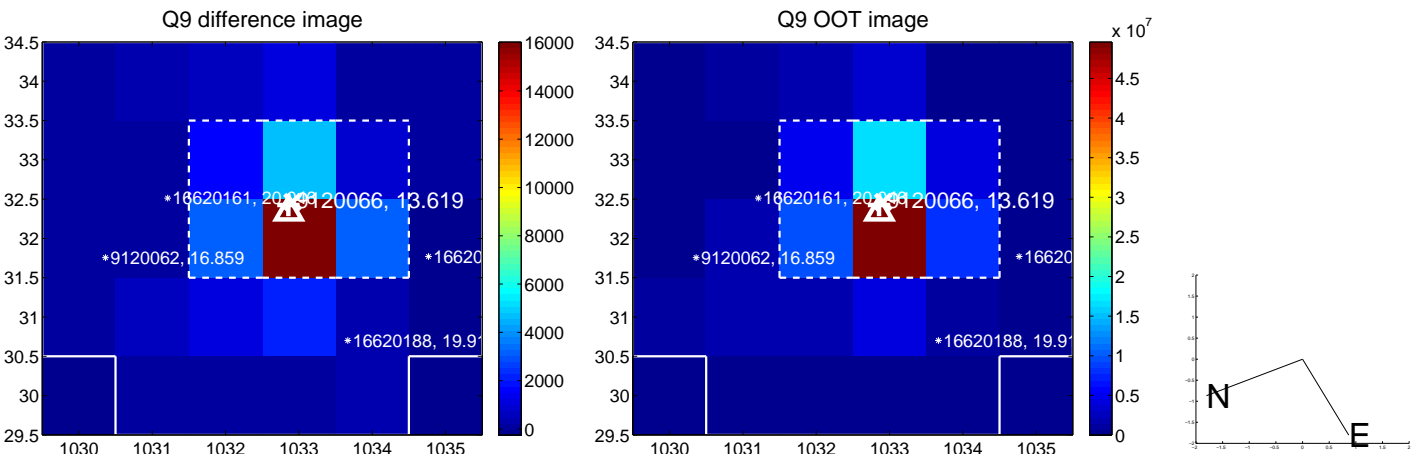
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



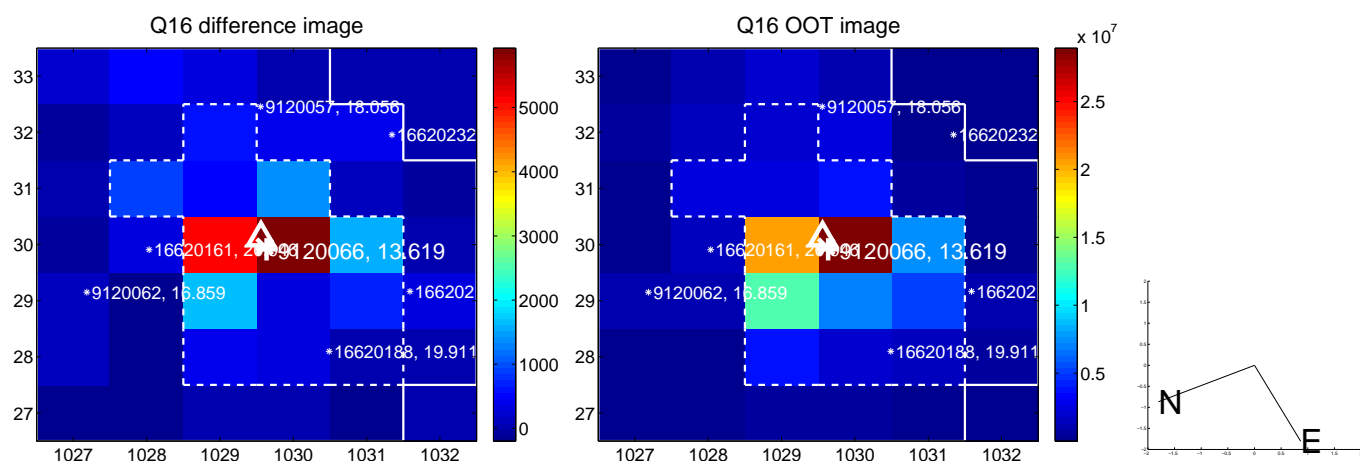
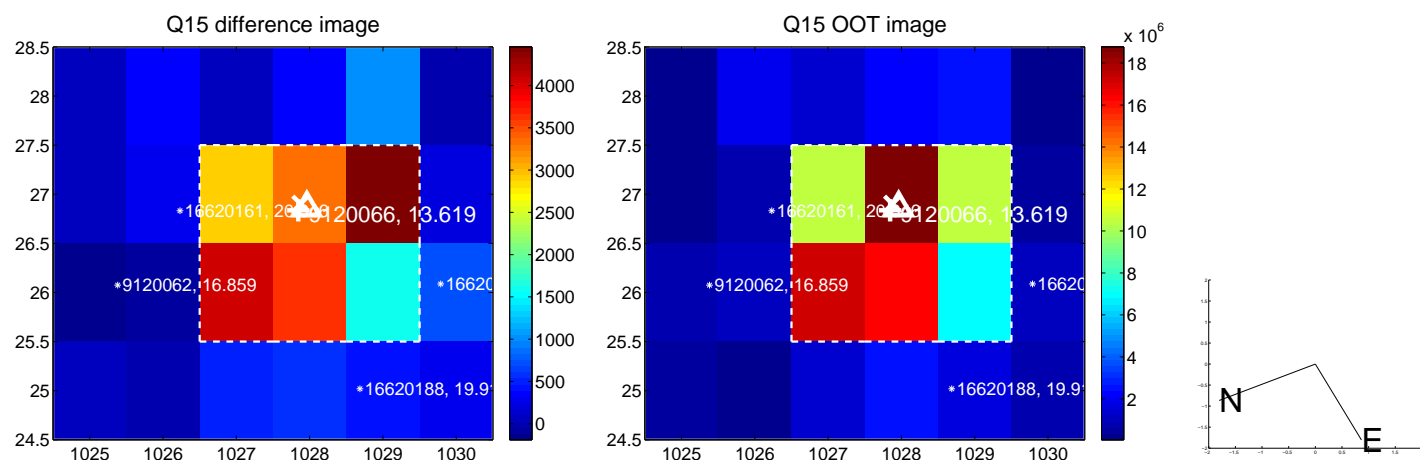
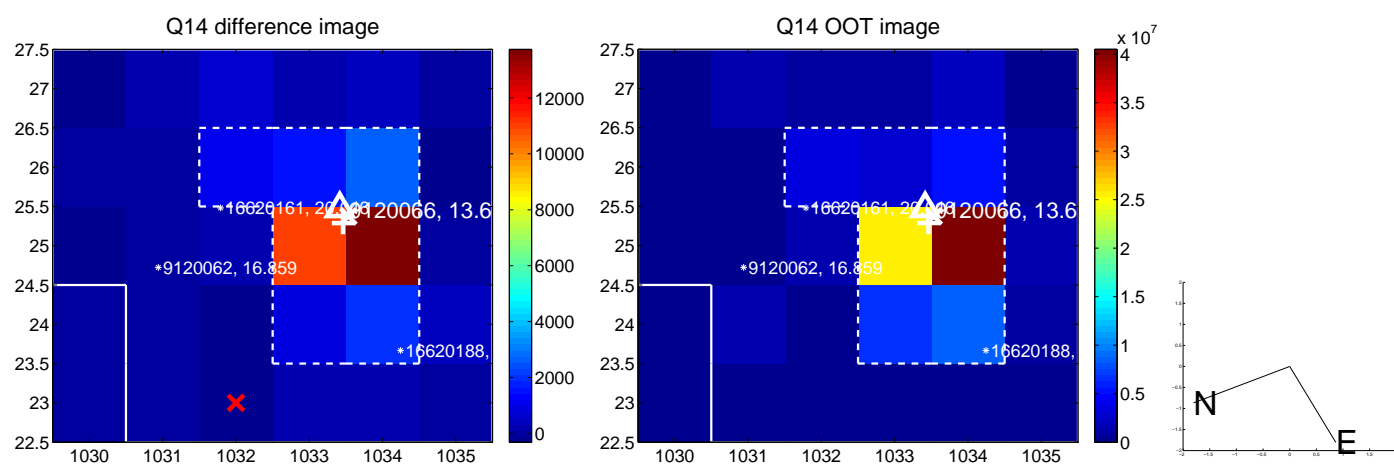
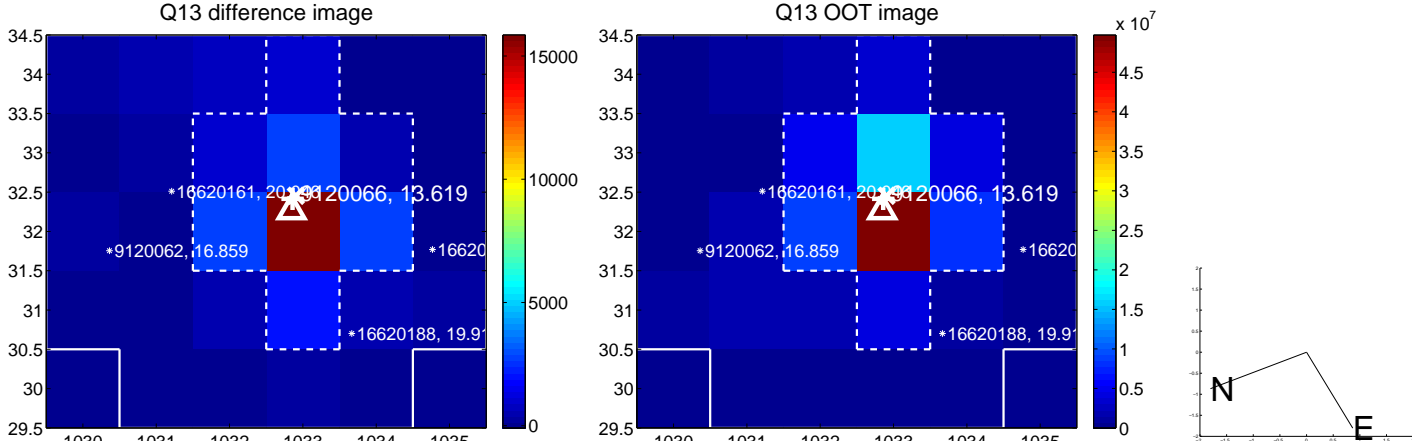
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



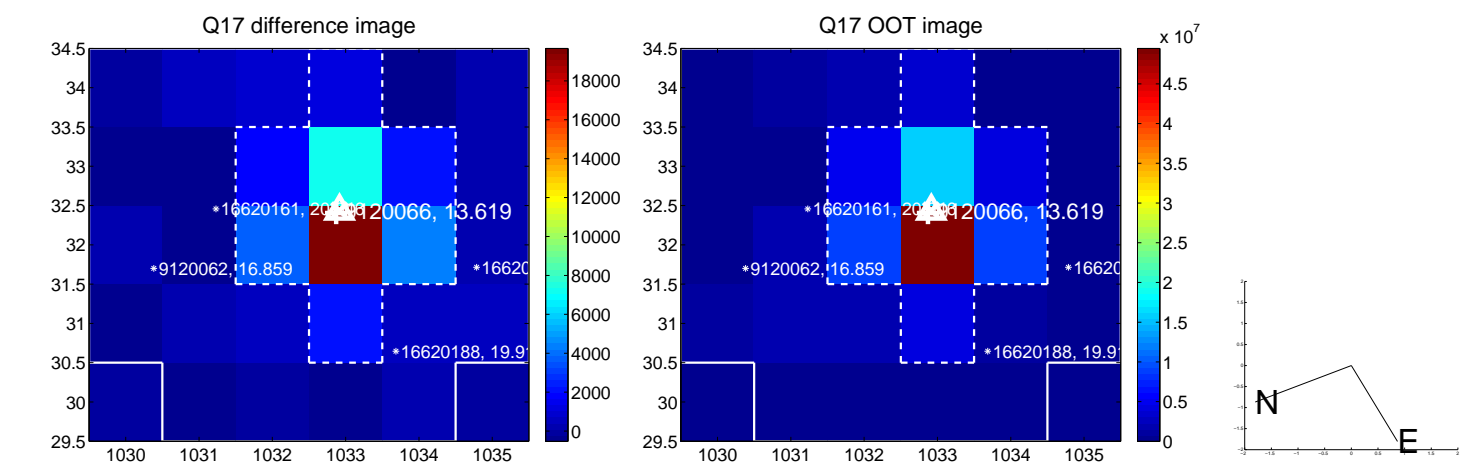
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



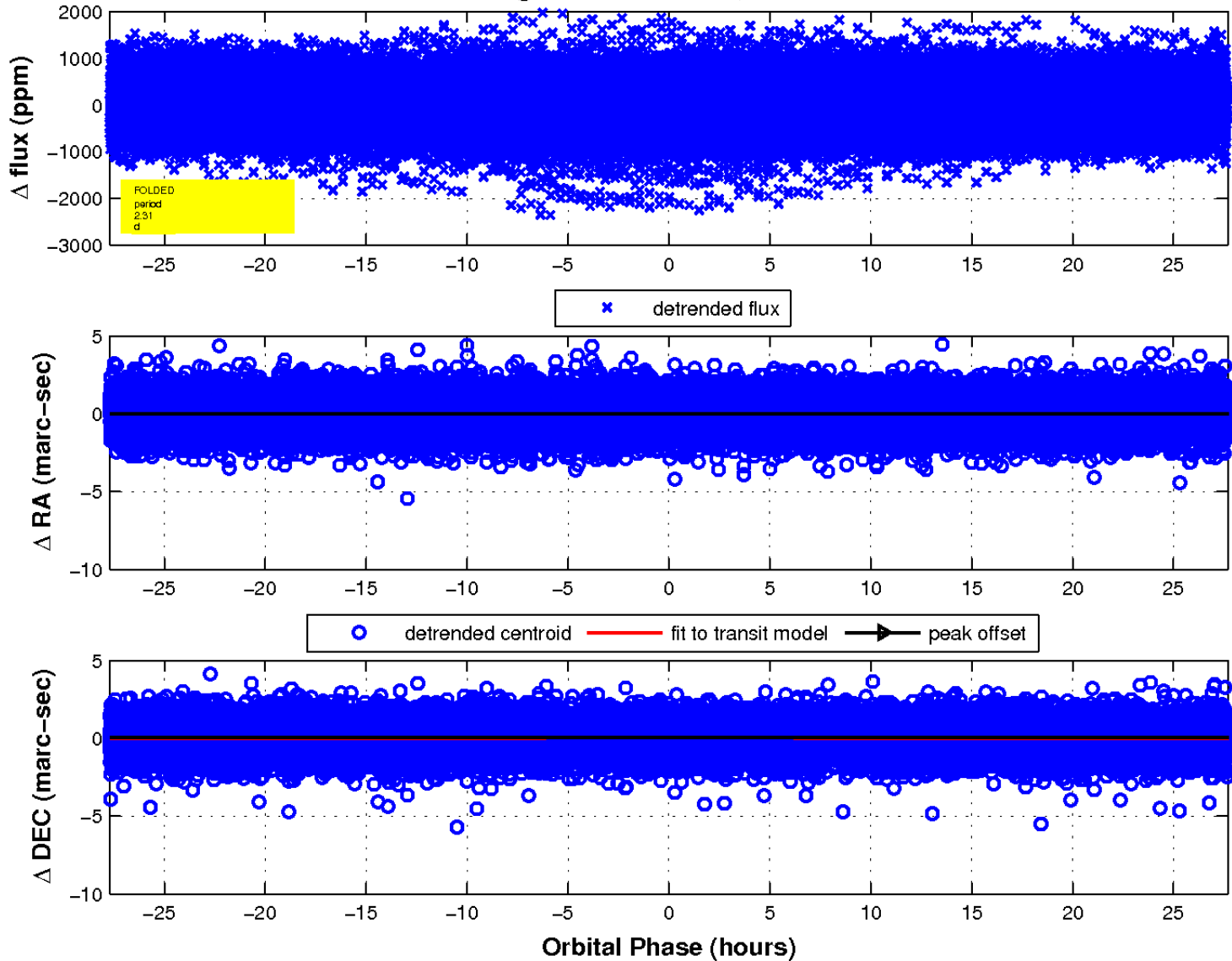
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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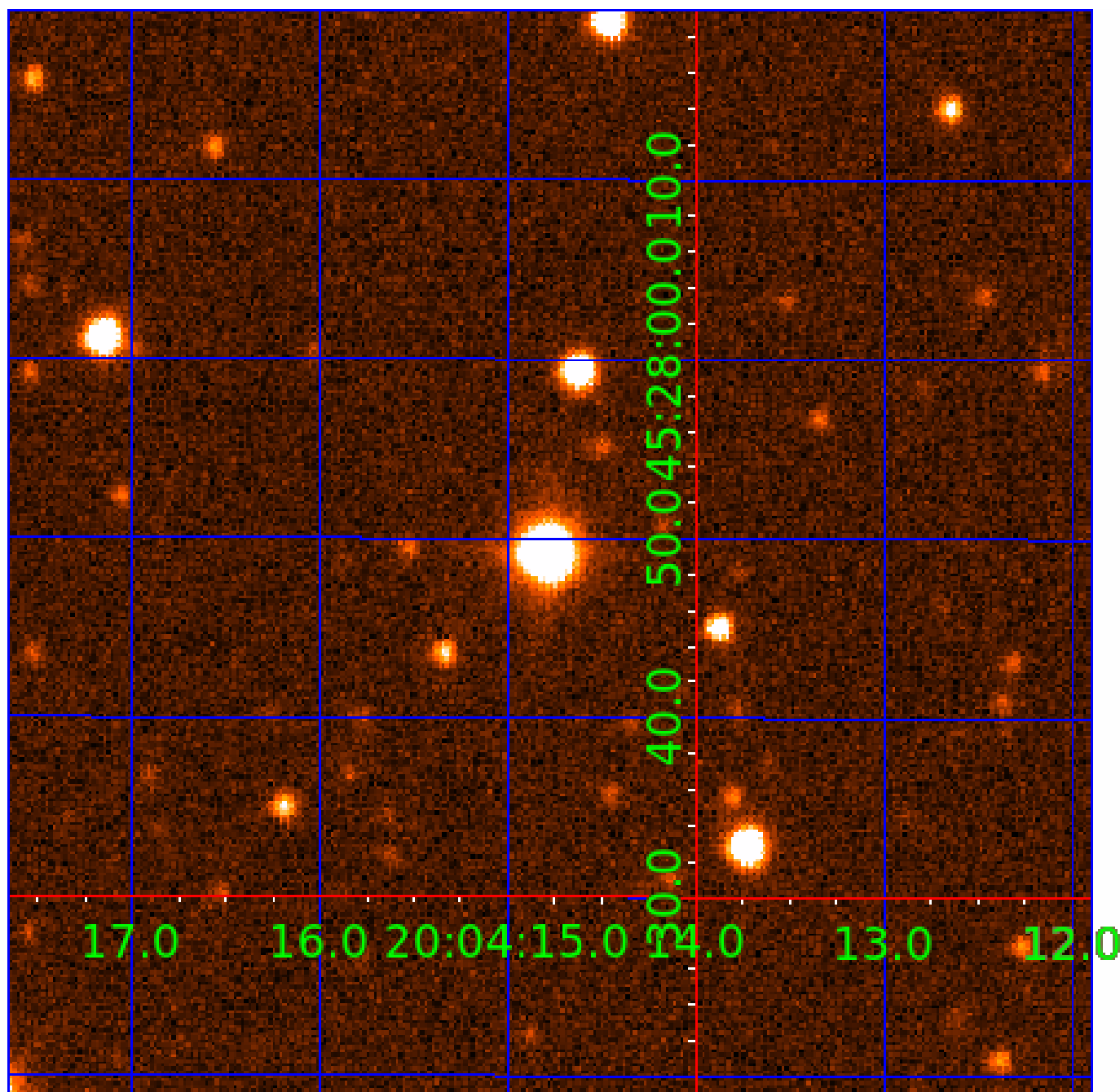


fluxWeightedCentroids, Planet 1 of 7



UKIRT Image

Declination



KIC 009120066

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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Robovetter Results

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009120066-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009120066-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009120066-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
009120066-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009120066-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

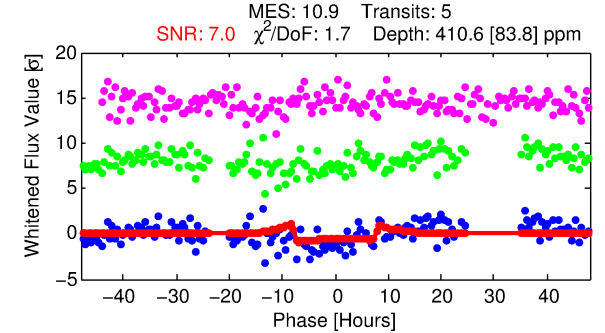
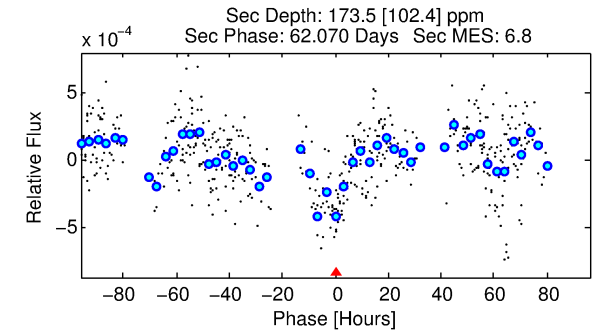
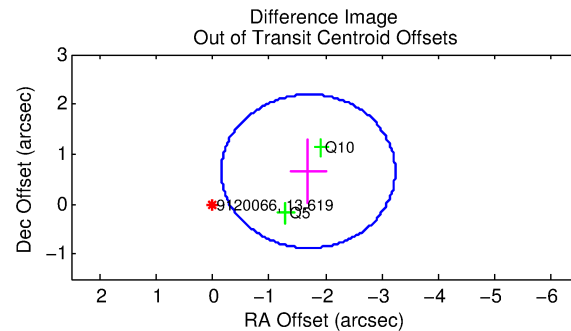
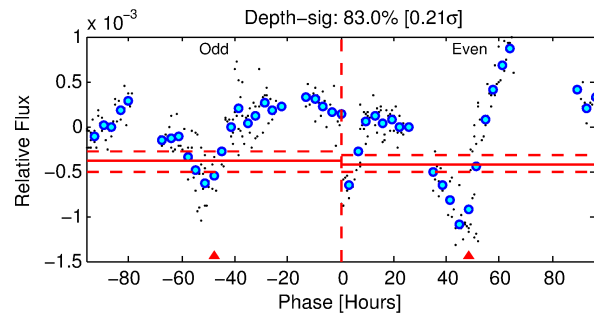
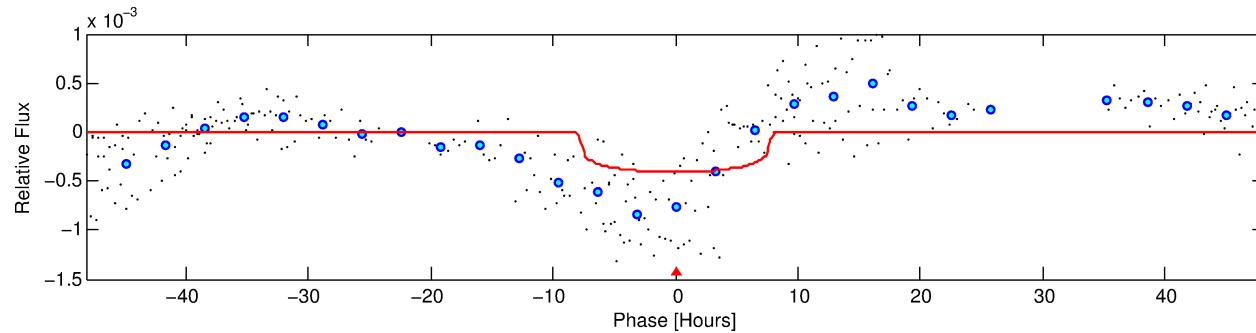
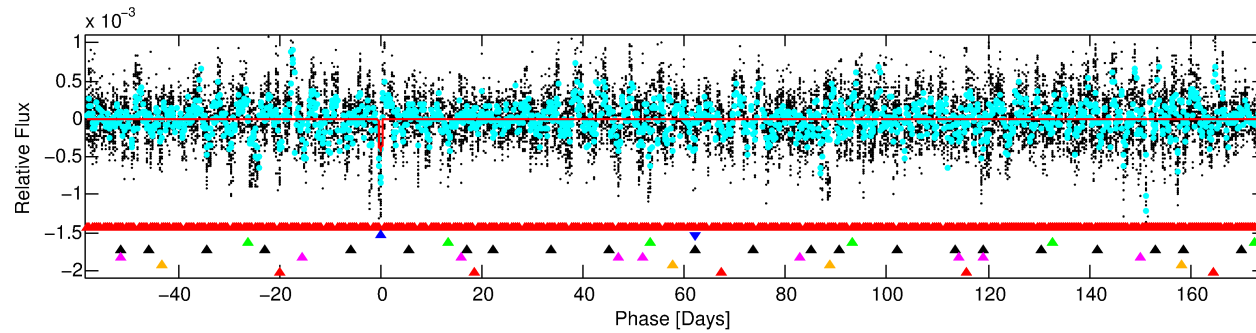
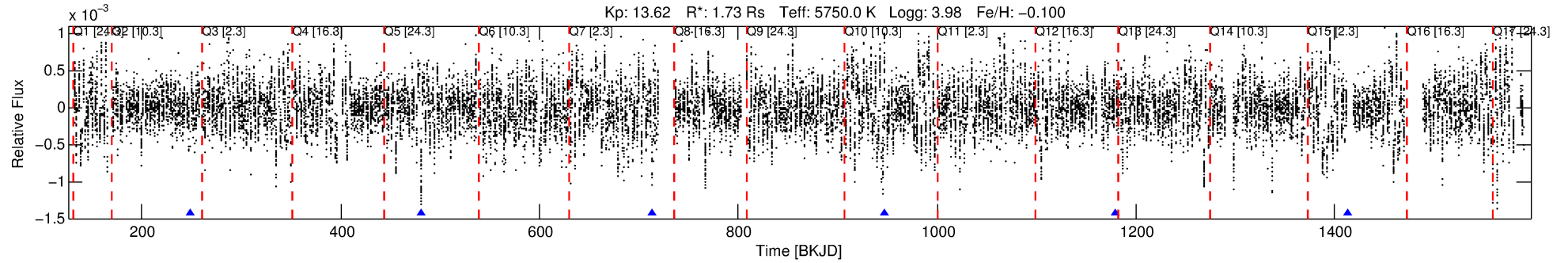
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009120066-02

No Significant Match Found

DV One-Page Summary

KIC: 9120066 Candidate: 2 of 7 Period: 232.912 d



DV Fit Results:

Period = 232.91218 [0.01350] d
Epoch = 248.2515 [0.0268] BKJD
Rp/R* = 0.0199 [0.0062]
a/R* = 80.58 [103.17]
b = 0.72 [0.89]
Seff = 5.19 [3.90]
Teq = 385 [72] K
Rp = 3.75 [1.99] Re
a = 0.7499 [0.3342] AU
Ag = 3809.29 [4301.27] [0.89 σ]
Teffp = 4676 [1010] K [4.24 σ]

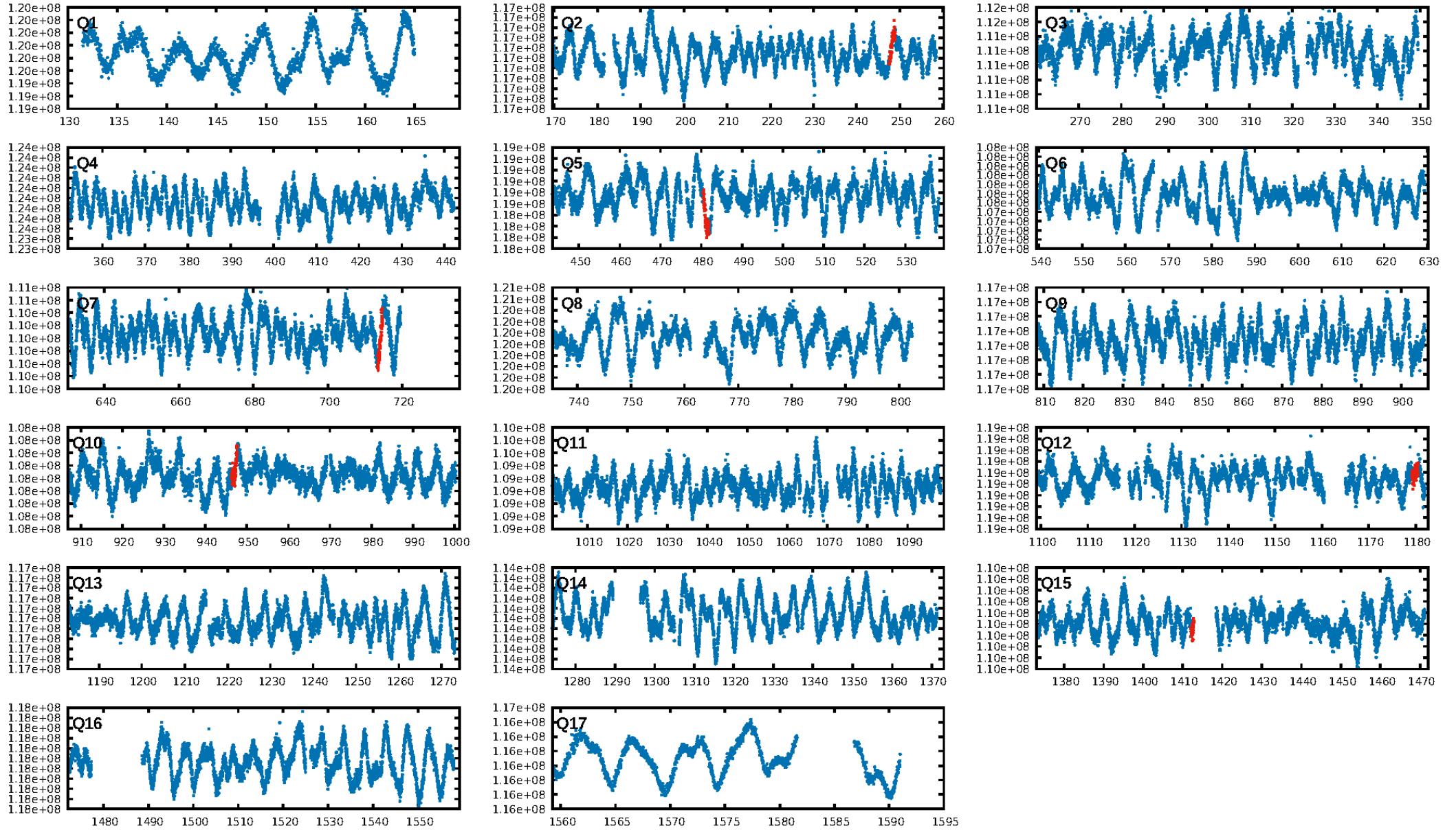
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [47.13 σ]
LongPeriod-sig: 100.0% [35.59 σ]
ModelChiSquare2-sig: 49.5%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 7.43e-12
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.07064
Centroid-sig: 58.2%
Centroid-so: 1.184 arcsec [1.99 σ]
OotOffset-rm: 1.820 arcsec [3.55 σ]
KicOffset-rm: 1.914 arcsec [3.63 σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/3]

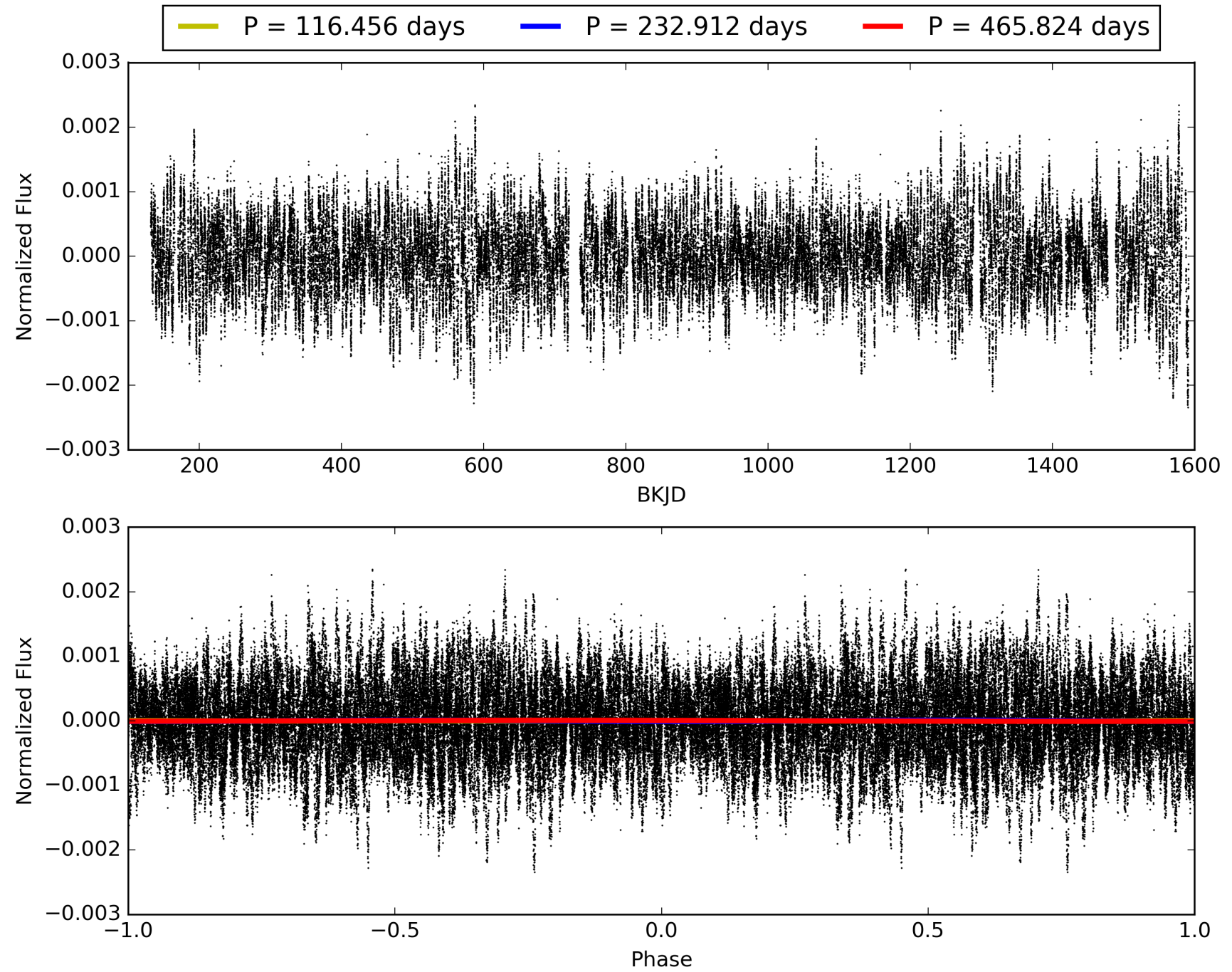
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:12:40 Z

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

TCE 009120066-02, PDC Light Curves

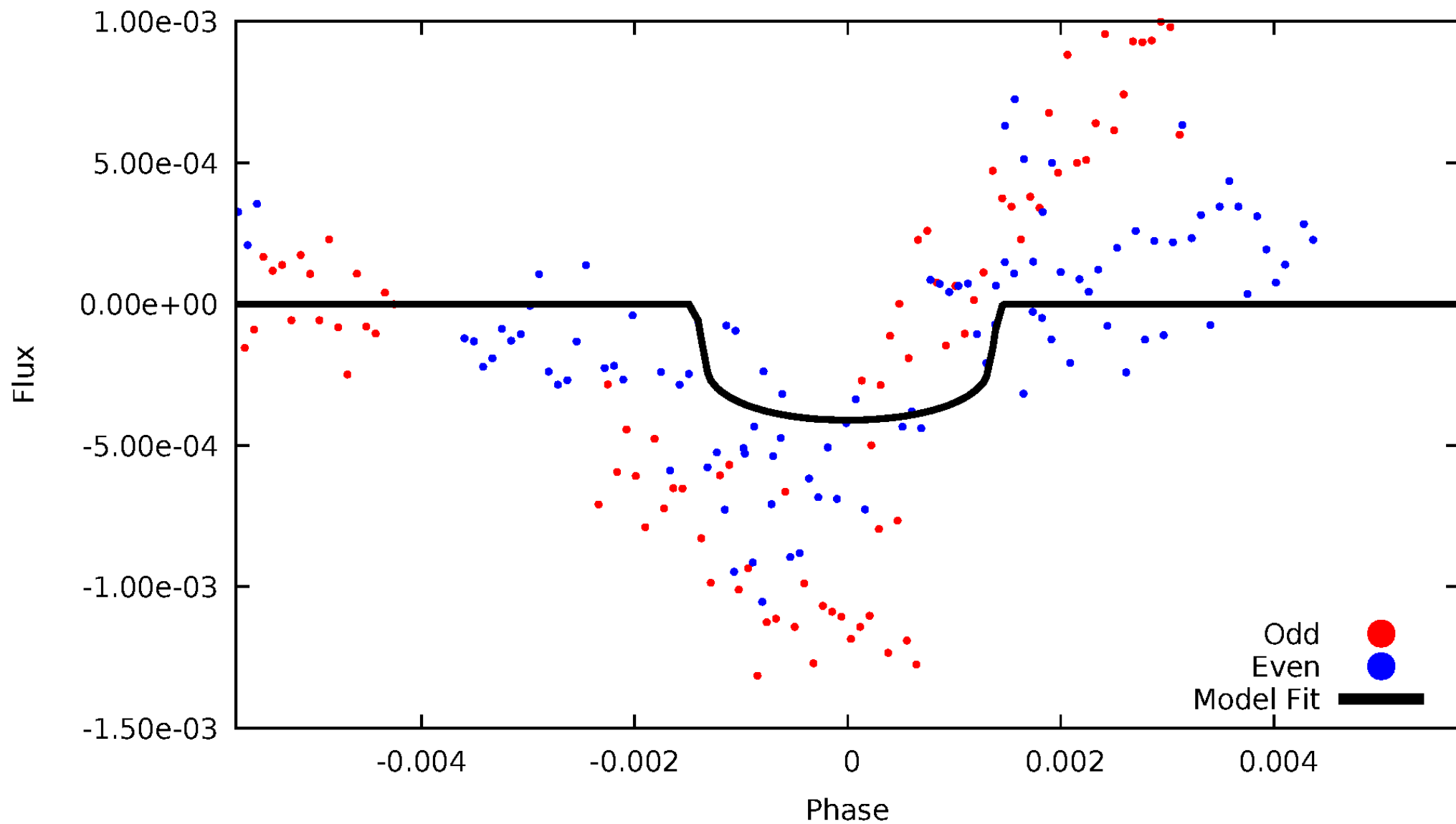


TCE 009120066-02



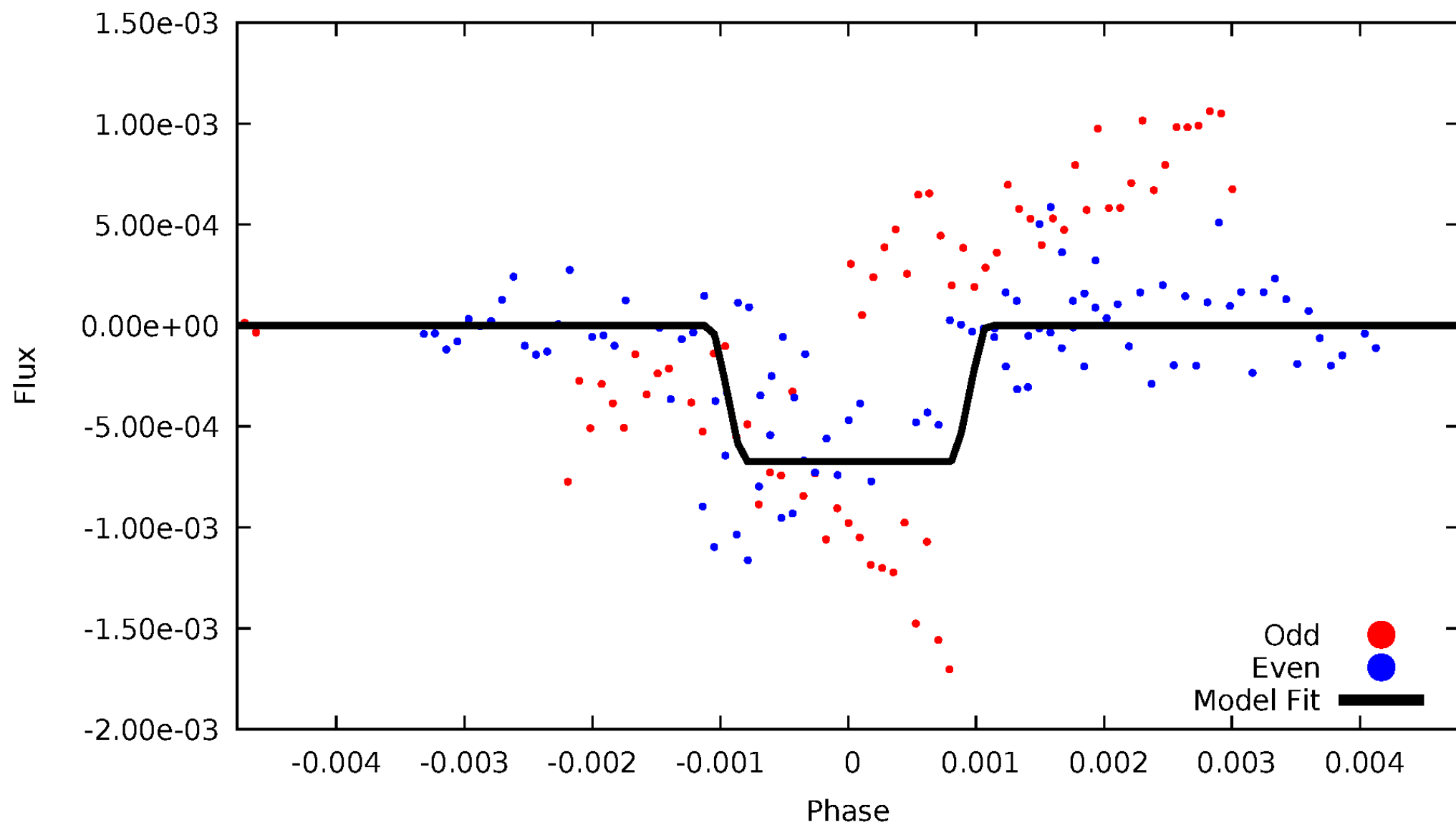
DV Odd/Even

TCE 009120066-02



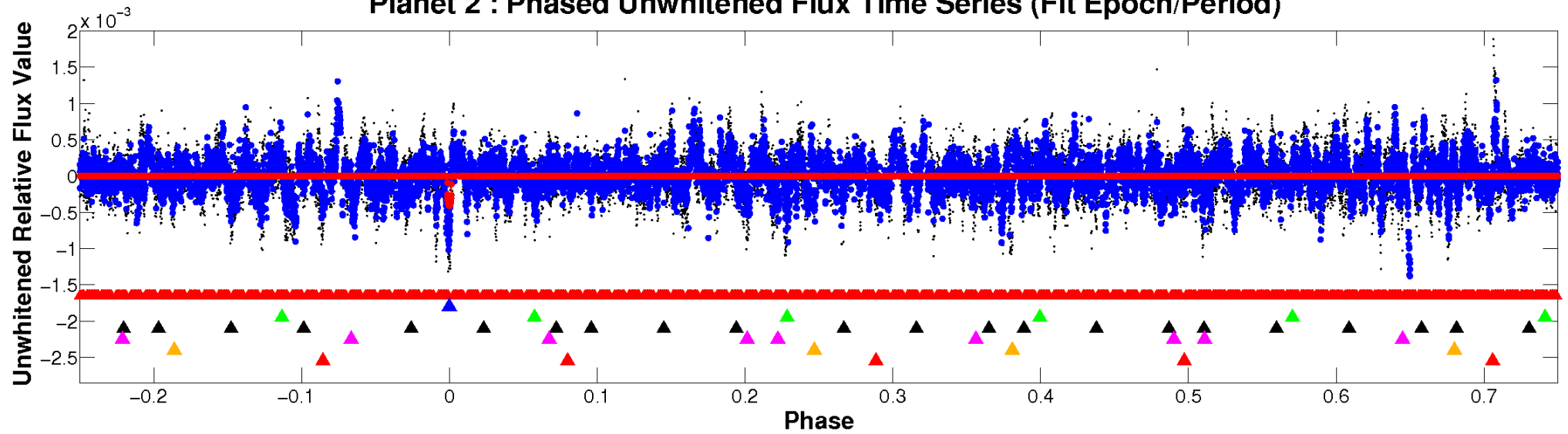
ALT Odd/Even

TCE 009120066-02

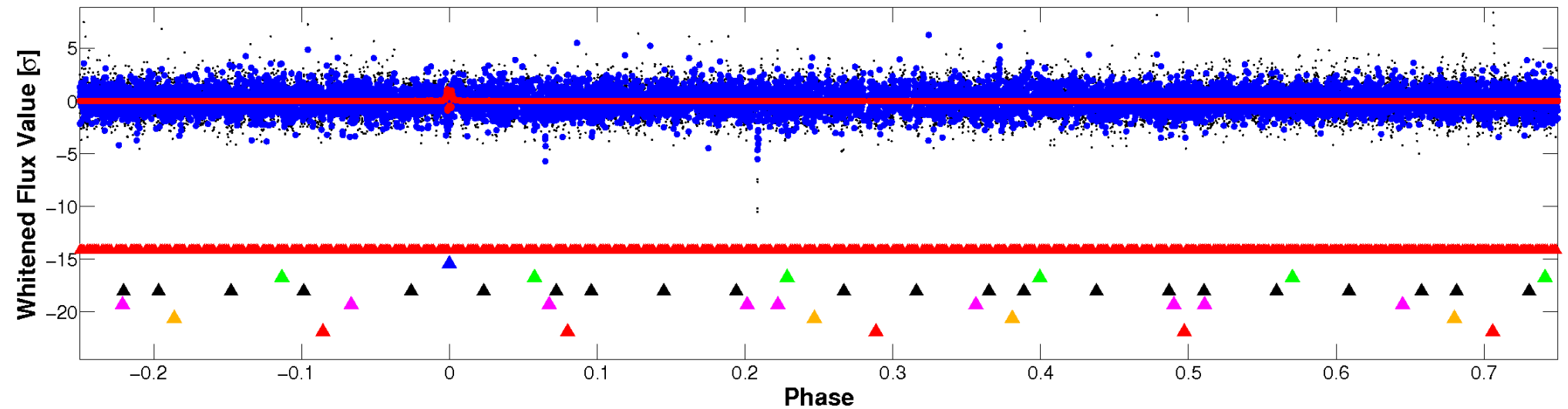


Non-Whitened Vs. Whitened Light Curve

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

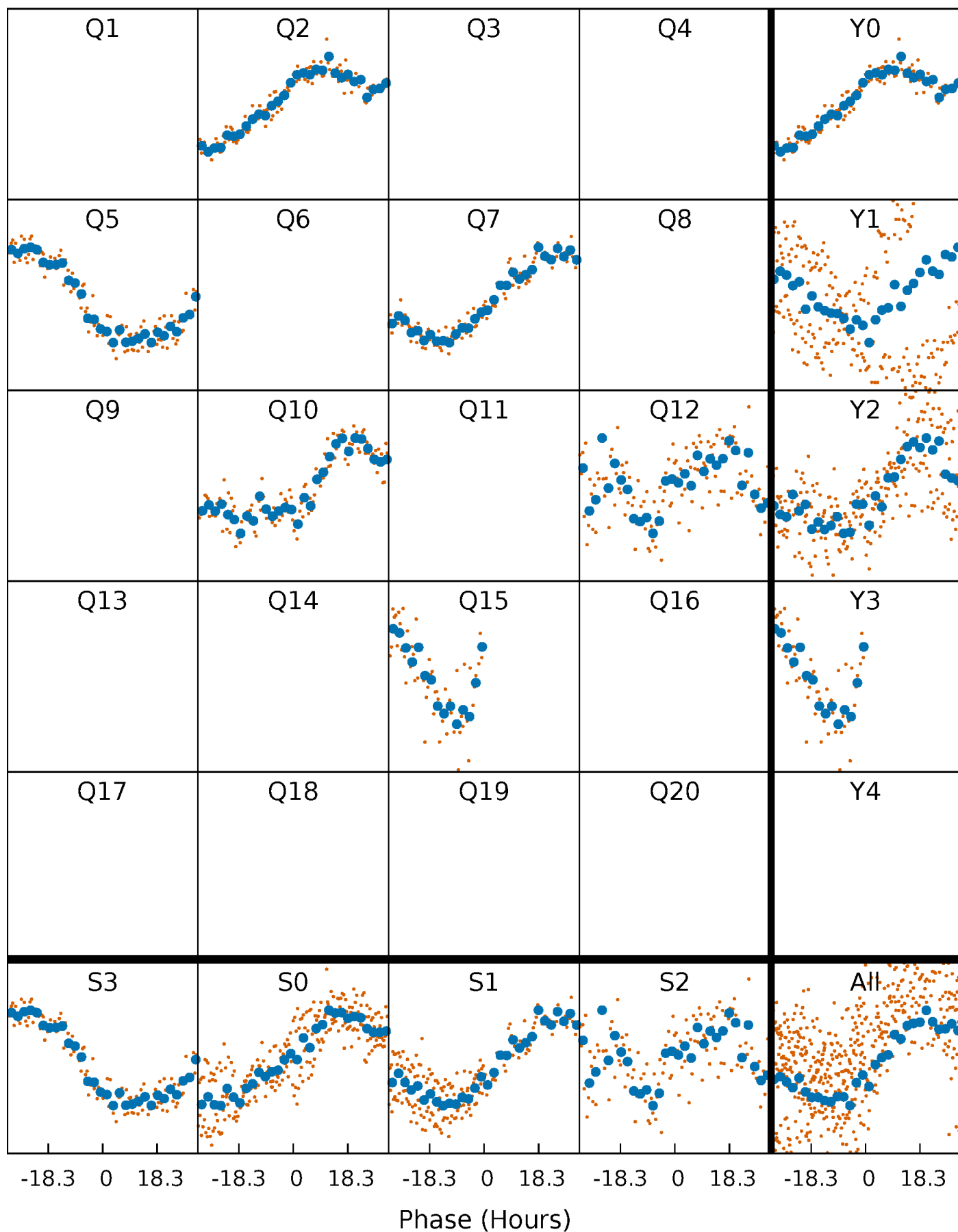


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



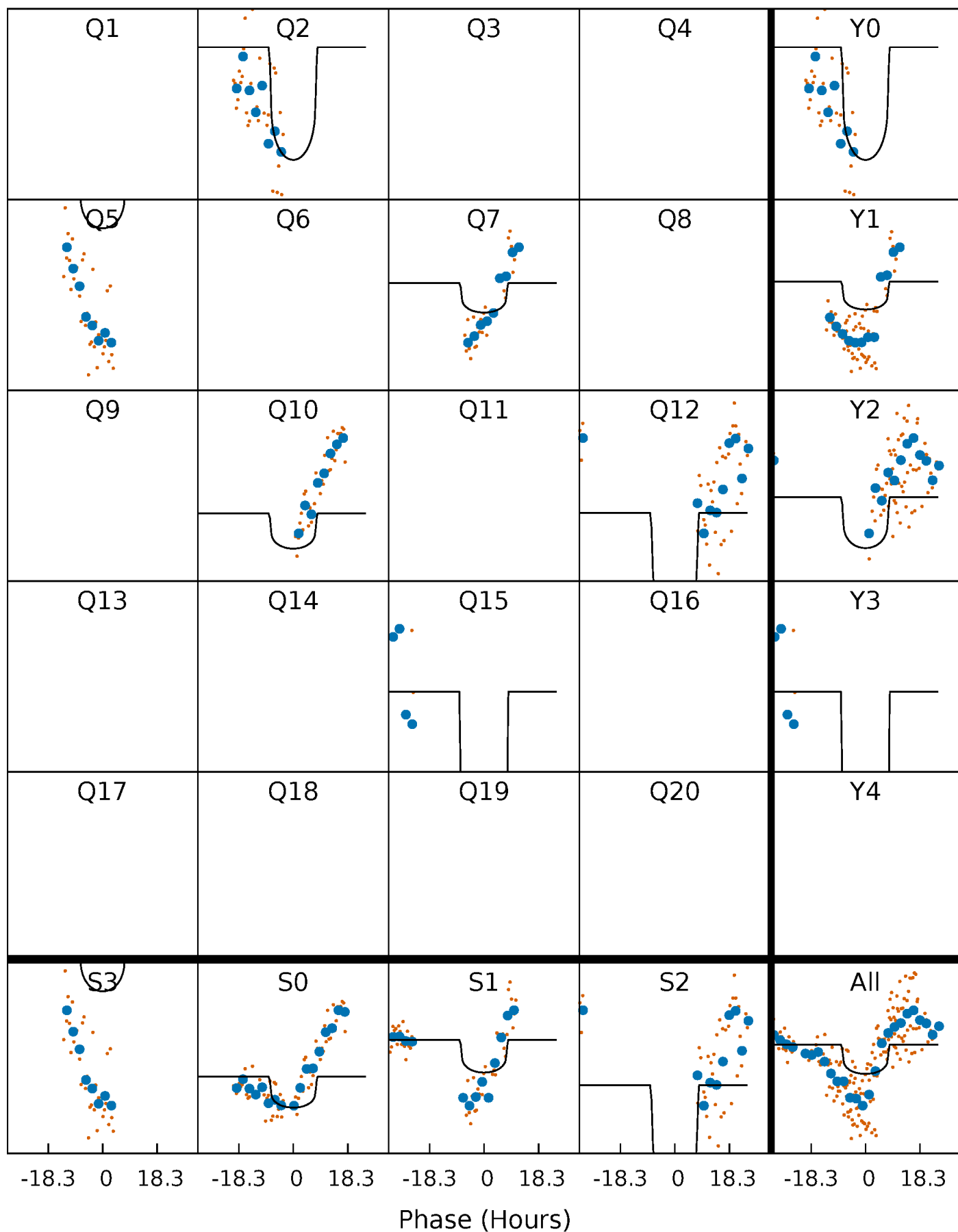
PDC Quarter-Phased Transit Curves

TCE 009120066-02 P=232.912176 Days $T_0=248.251506$ (BKJD)



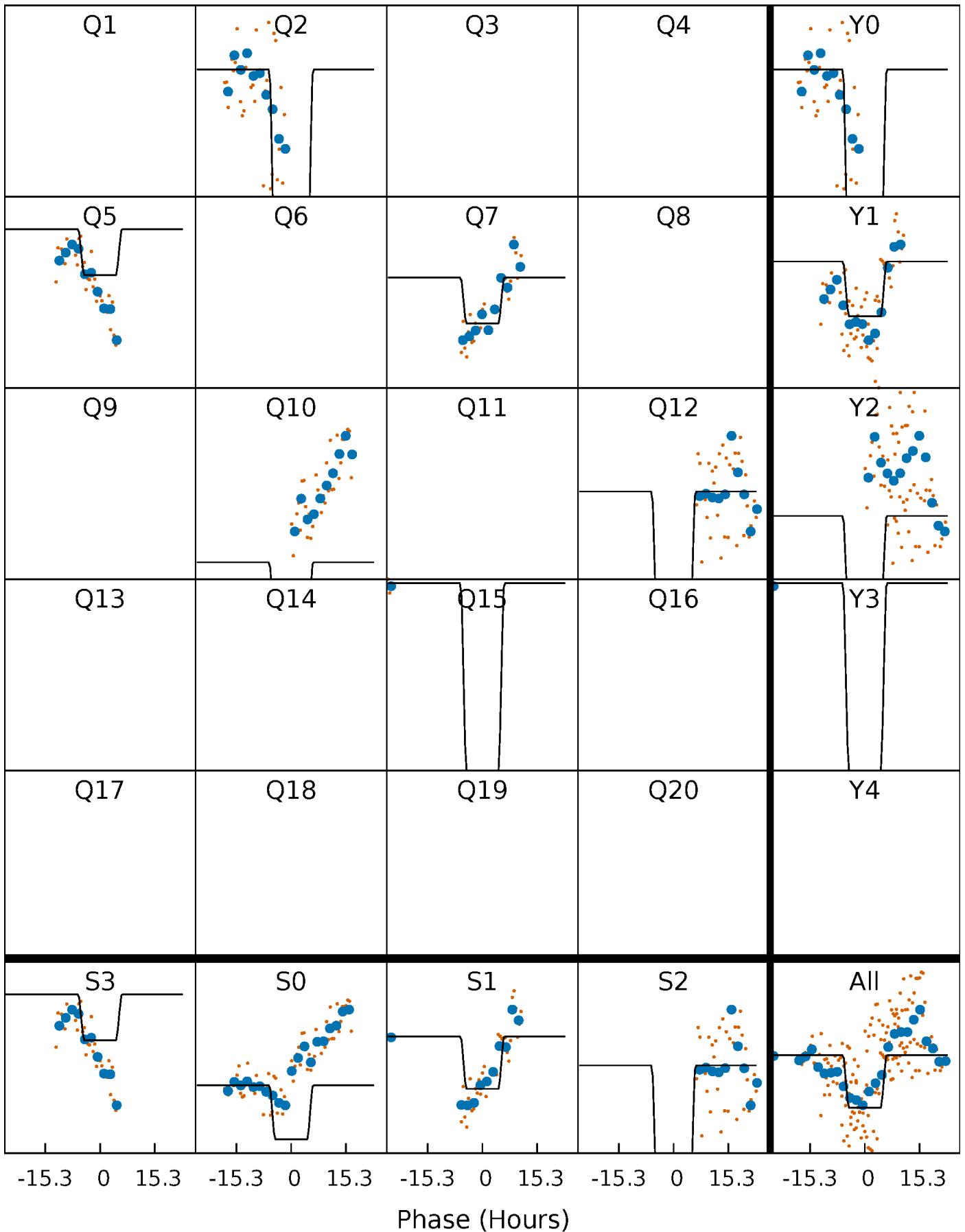
DV Quarter-Phased Transit Curves

TCE 009120066-02 P=232.912176 Days $T_0=248.251506$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

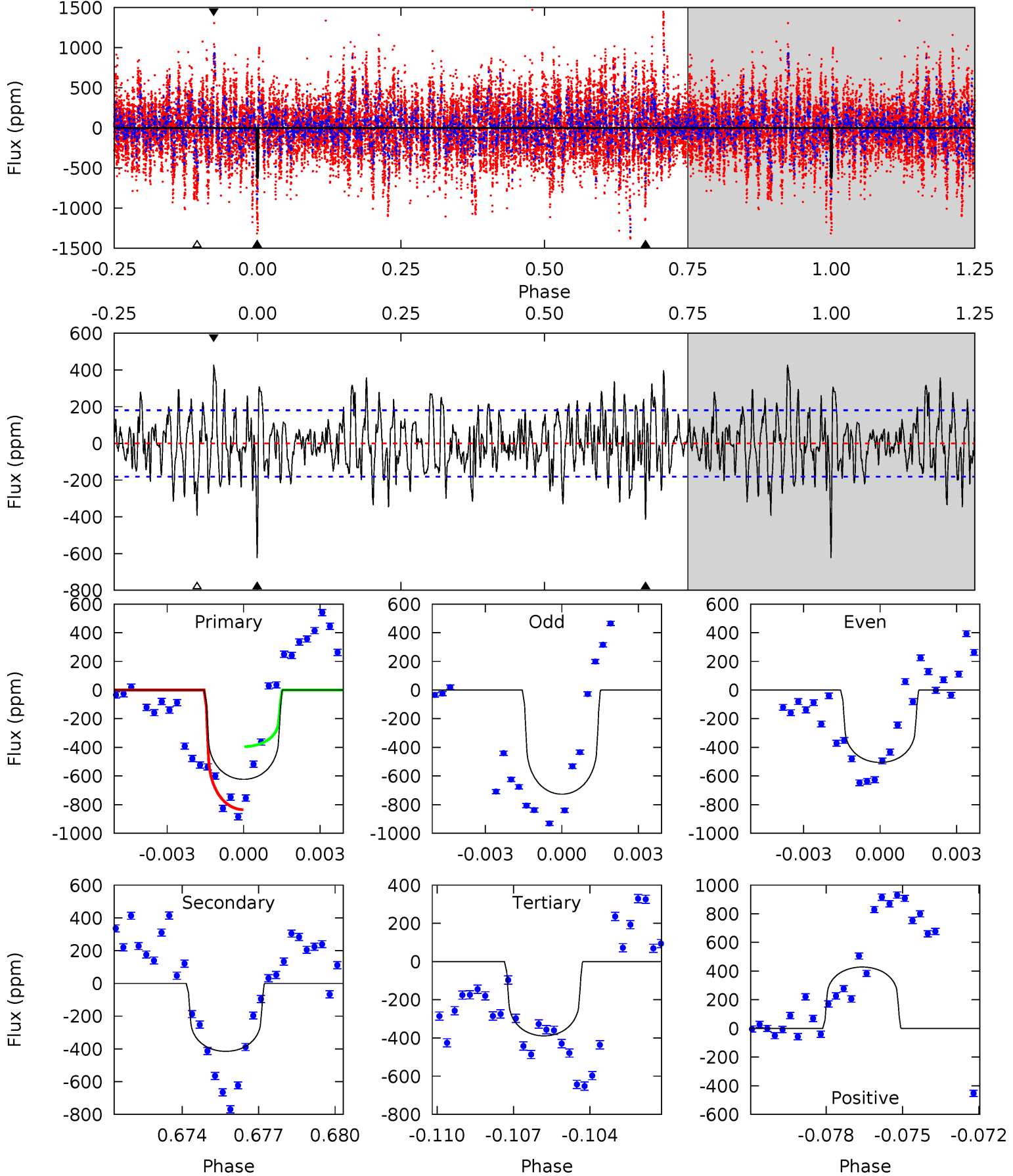
TCE 009120066-02 P=232.942584 Days $T_0=248.186758$ (BKJD)



DV Model-Shift Uniqueness Test

009120066-02, P = 232.912176 Days, E = 15.339330 Days

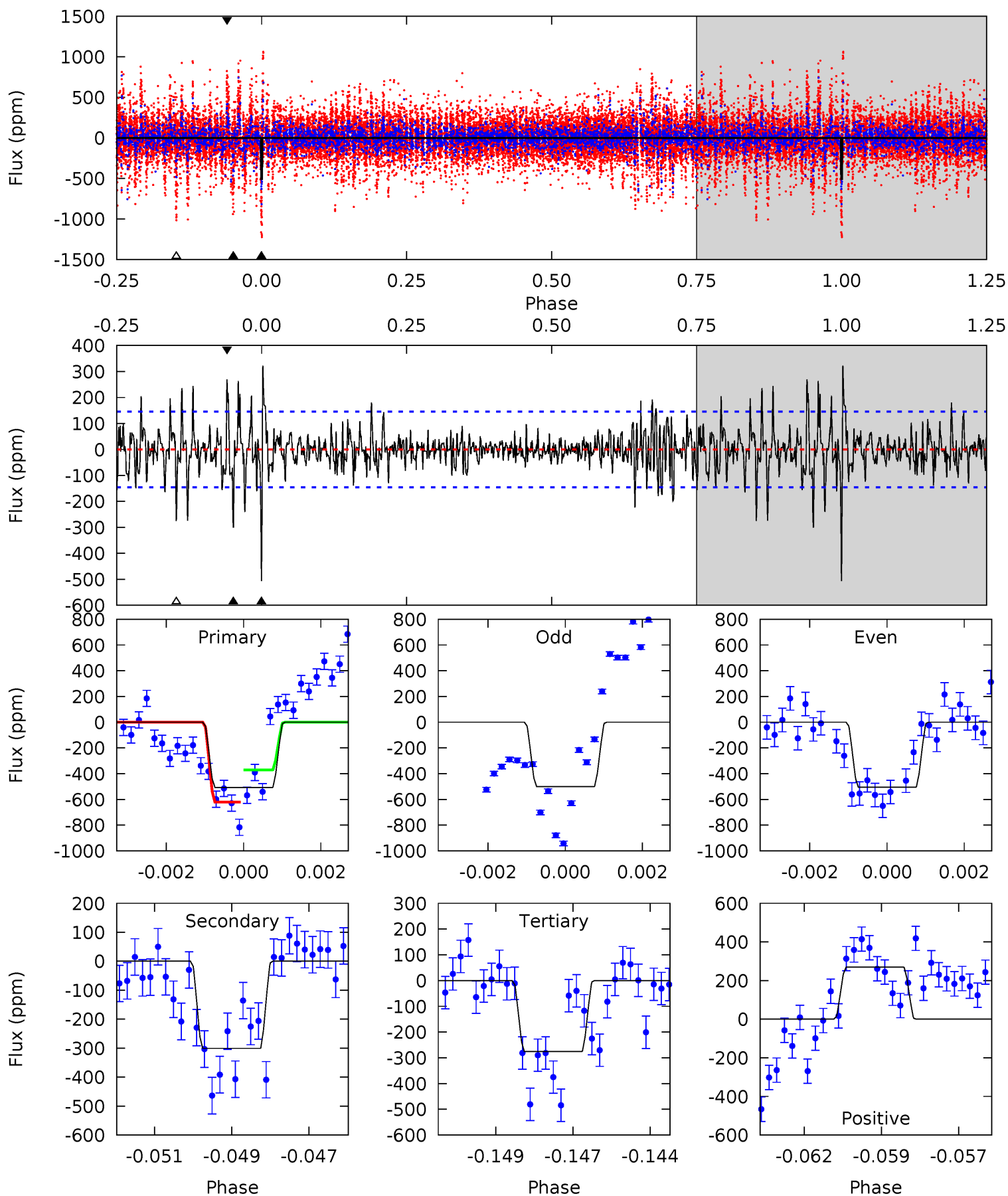
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	12.1	11.3	12.5	5.26	2.98	3.73	6.82	5.68	0.76	-0.39	3.24	1.13	0.41	6.41



Alt Model-Shift Uniqueness Test

009120066-02, $P = 232.942584$ Days, $E = 15.244174$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.5	11.0	10.1	9.84	5.32	3.07	2.37	8.45	8.67	0.93	1.15	0.09	0.88	0.39	4.61



Stellar Parameters For KIC 009120066

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5750^{+190}_{-173}	$3.979^{+0.443}_{-0.148}$	$-0.100^{+0.300}_{-0.300}$	$1.727^{+0.402}_{-0.746}$	$1.037^{+0.140}_{-0.155}$	$0.284^{+1.102}_{-0.115}$
	+3%/-3%	+11%/-4%	+300%/-300%	+23%/-43%	+14%/-15%	+388%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009120066-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-415 ± 34	$3.45^{+1.51}_{-1.24}$	529^{+45}_{-65}	5829^{+1244}_{-714}	10758^{+14727}_{-5436}
Alt.	-301 ± 27	$4.56^{+1.62}_{-1.42}$	532^{+42}_{-61}	4853^{+618}_{-480}	4573^{+4686}_{-2103}

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

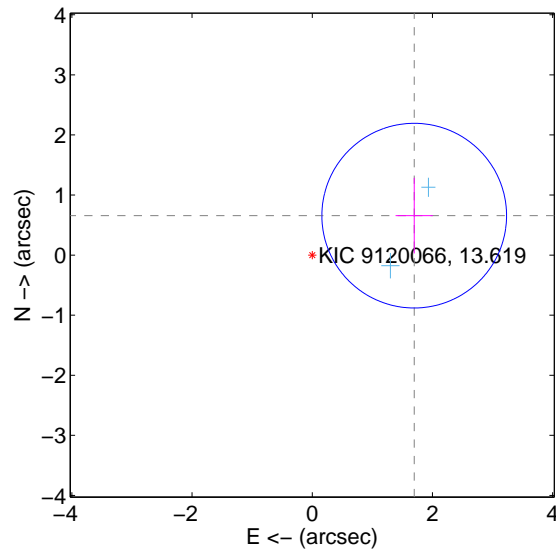
Supplemental centroid analysis for 009120066-02. Kepler magnitude: 13.62. Transit SNR 7.00

There are 2 quarters with good PRF difference image offsets

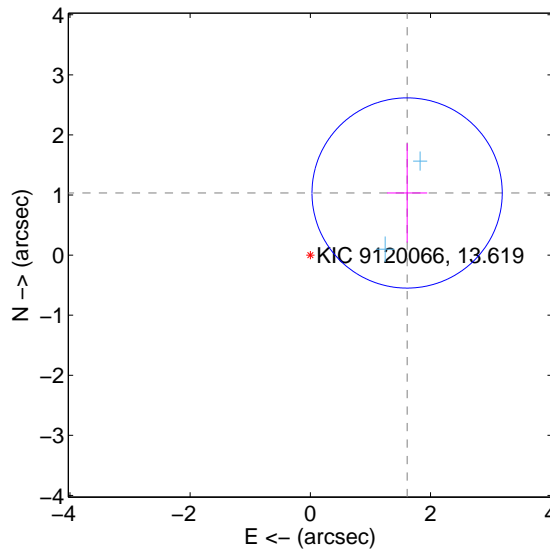
The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.820 ± 0.512	3.55	-1.697 ± 0.310	0.657 ± 0.629
PRF-fit source offset from KIC position	1.914 ± 0.528	3.63	-1.611 ± 0.335	1.034 ± 0.826
photometric centroid source offset	1.18 ± 0.59	1.99	0.91 ± 0.60	0.76 ± 0.58

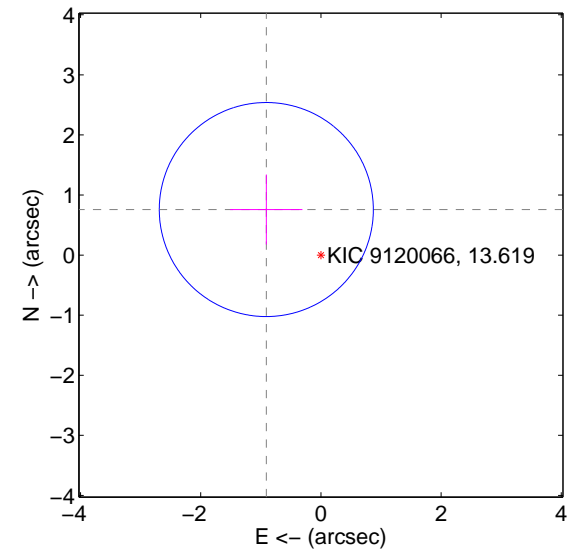
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

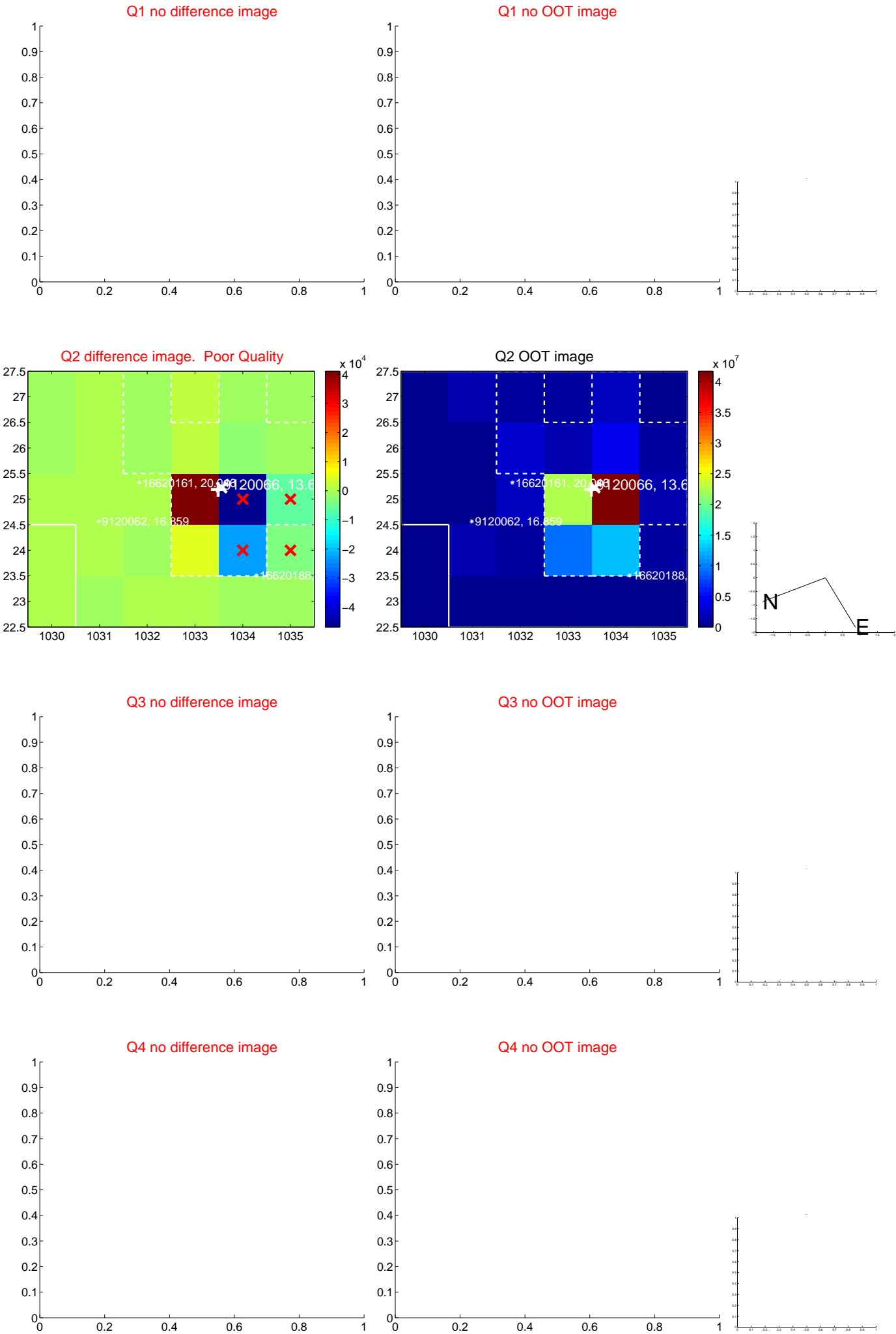


offset from photometric centroids

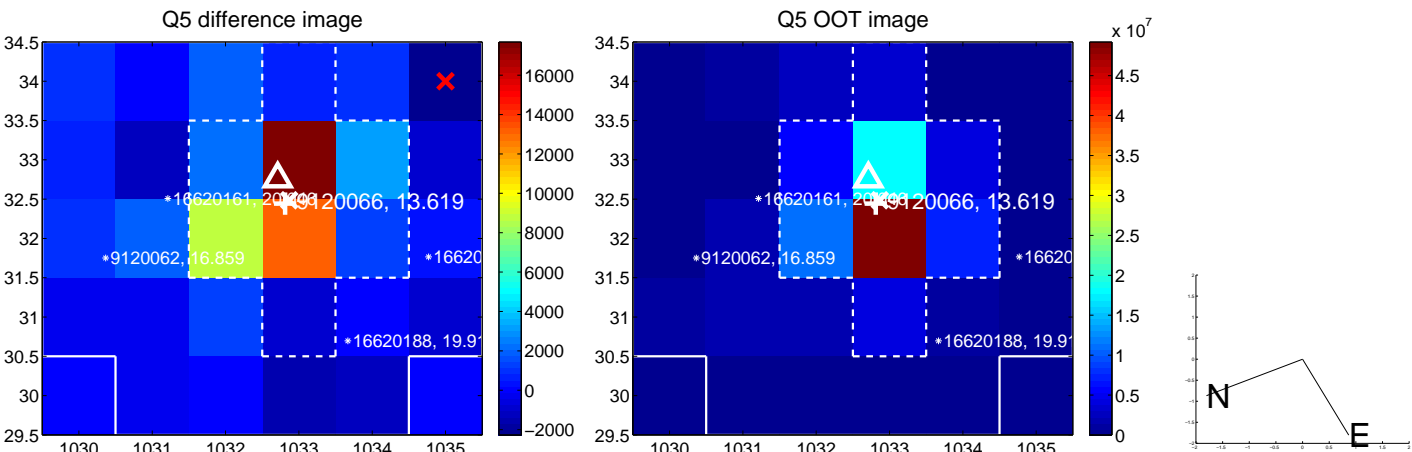


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

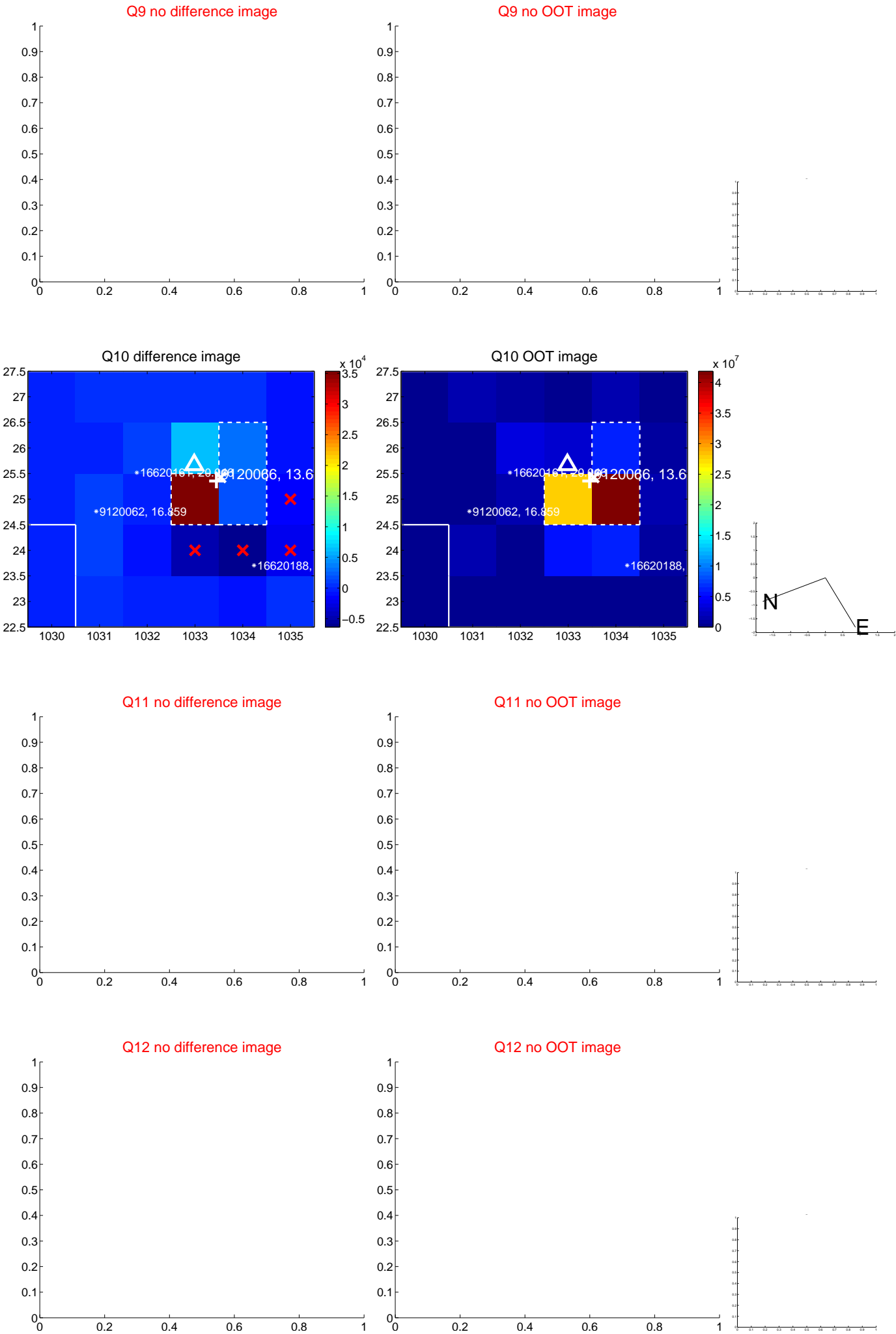
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



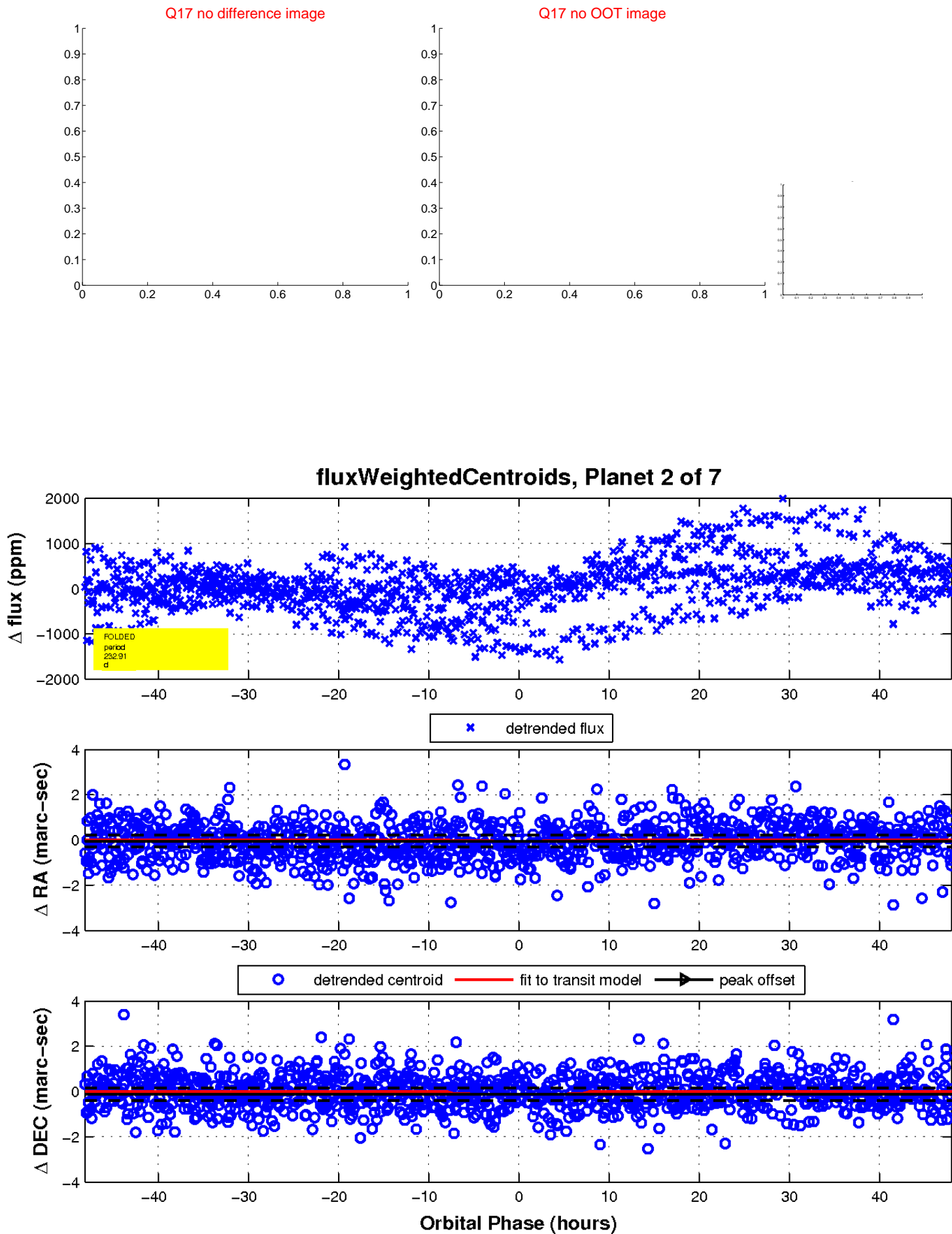
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

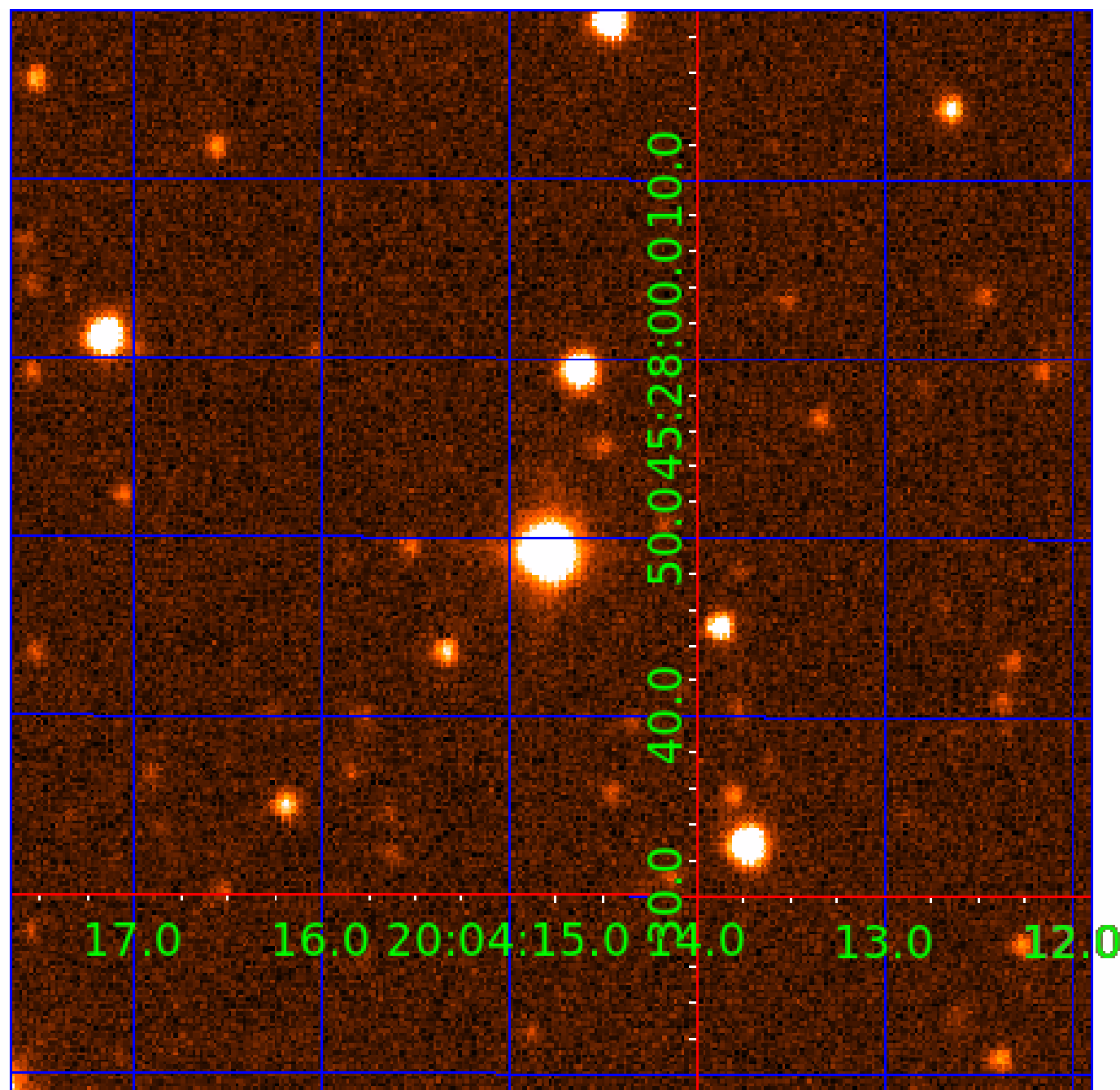


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009120066

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})
009120066-01	OBS	No	2.308947	133.462235	41.2	12.551	7.8	9.9	1.73	5750	1.16	2438.98
009120066-02	OBS	No	232.912176	248.251506	410.6	16.047	10.9	7.0	1.73	5750	3.75	5.19
009120066-03	OBS	No	272.722309	221.862472	454.5	21.520	10.4	7.9	1.73	5750	4.04	4.21
009120066-04	OBS	No	68.179339	134.255248	138.3	17.757	9.4	3.7	1.73	5750	2.15	26.72
009120066-06	OBS	No	364.962490	173.721434	293.5	3.533	7.6	7.4	1.73	5750	3.52	2.85
009120066-07	OBS	No	281.499235	266.893089	285.3	15.289	8.8	5.0	1.73	5750	3.04	4.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009120066-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
009120066-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009120066-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009120066-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
009120066-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009120066-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

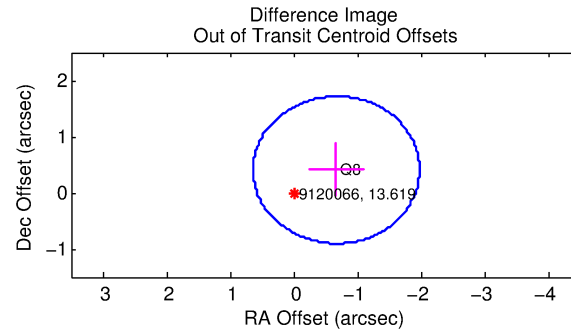
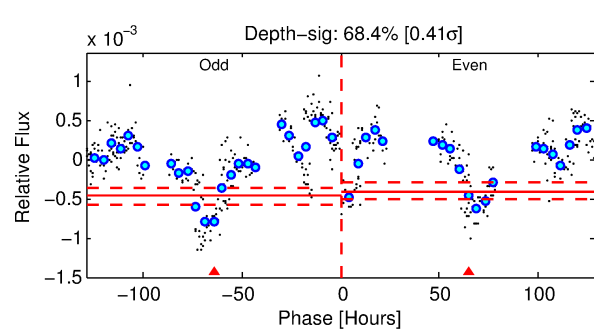
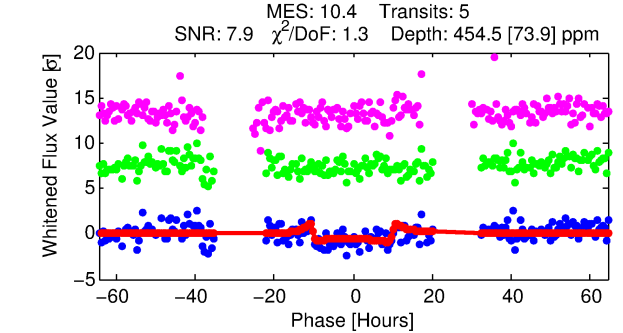
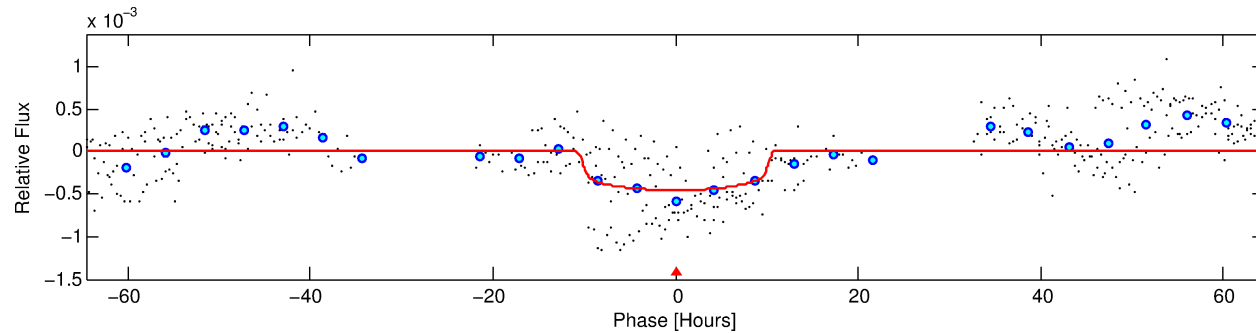
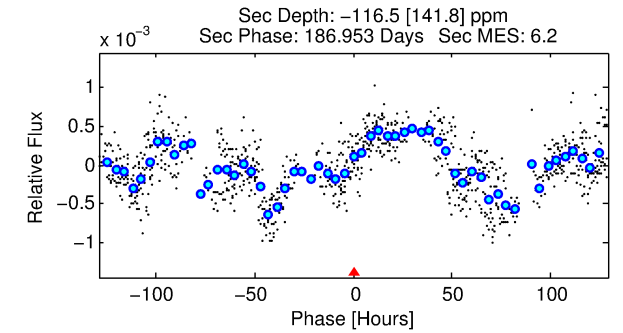
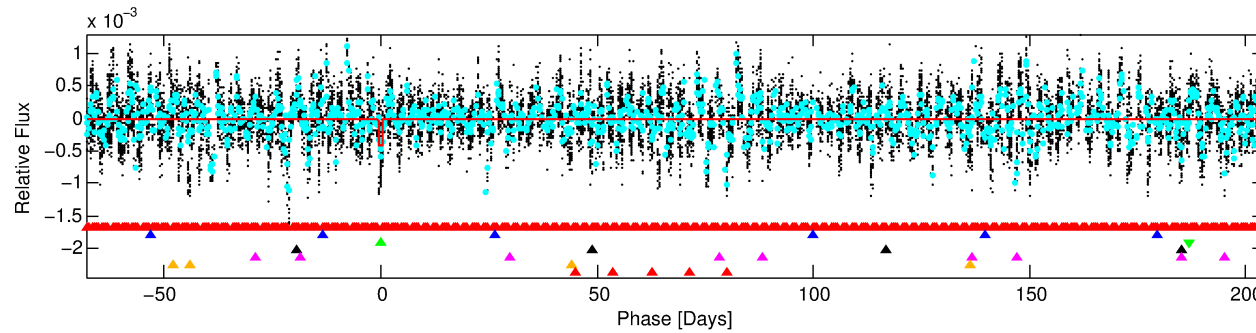
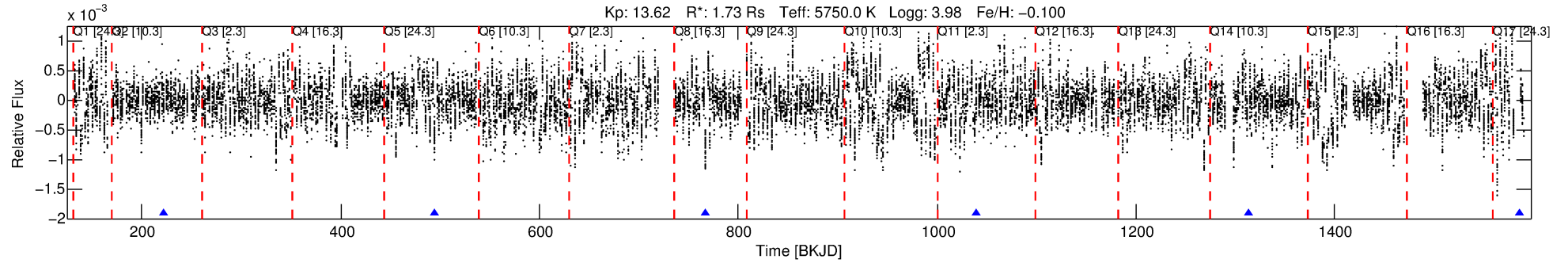
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009120066-03

No Significant Match Found

DV One-Page Summary

KIC: 9120066 Candidate: 3 of 7 Period: 272.722 d



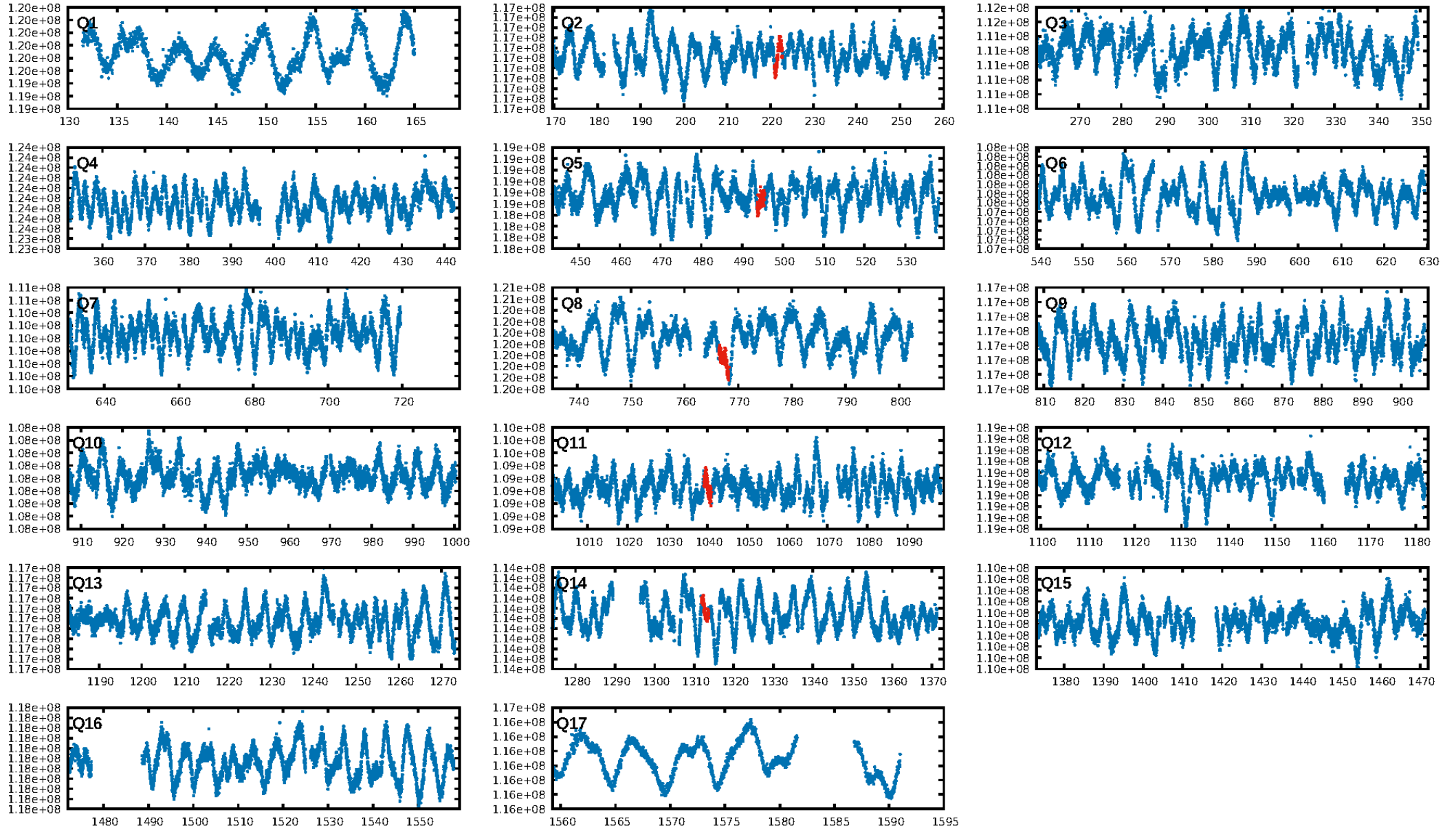
DV Fit Results:

Period = 272.72231 [0.01838] d
Epoch = 221.8625 [0.0379] BKJD
Rp/R* = 0.0215 [0.0031]
a/R* = 64.07 [32.71]
b = 0.78 [0.25]
Seff = 4.21 [3.16]
Teff = 365 [69] K
Rp = 4.04 [1.84] Re
a = 0.8331 [0.3712] AU
Ag = N/A
Teffp = N/A

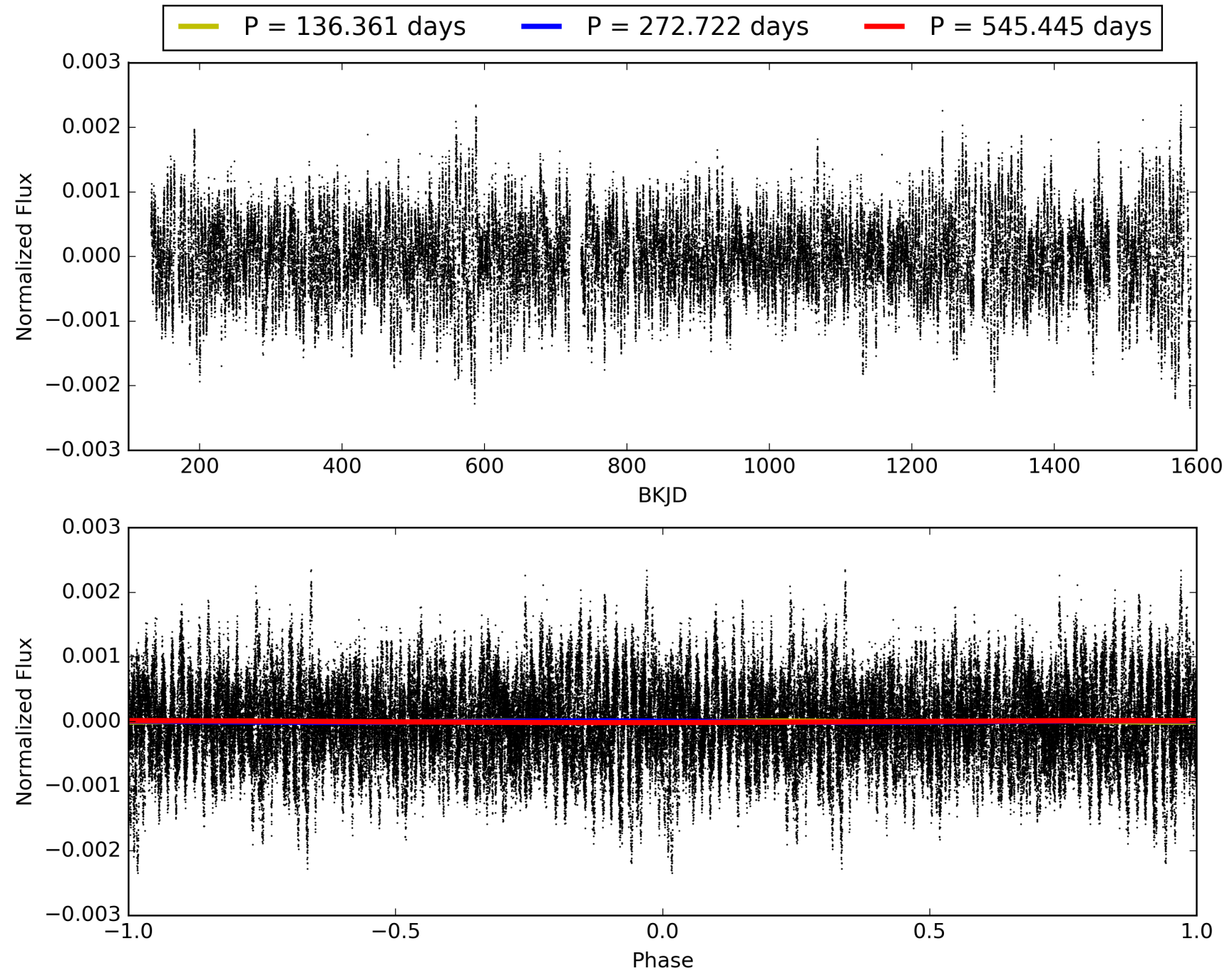
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [35.59σ]
LongPeriod-sig: 100.0% [7.98σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.38e-11
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.3131
Centroid-sig: 0.0%
Centroid-so: 1.521 arcsec [2.94σ]
OotOffset-rm: 0.784 arcsec [1.79σ]
KicOffset-rm: 0.934 arcsec [2.07σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/4]

TCE 009120066-03, PDC Light Curves

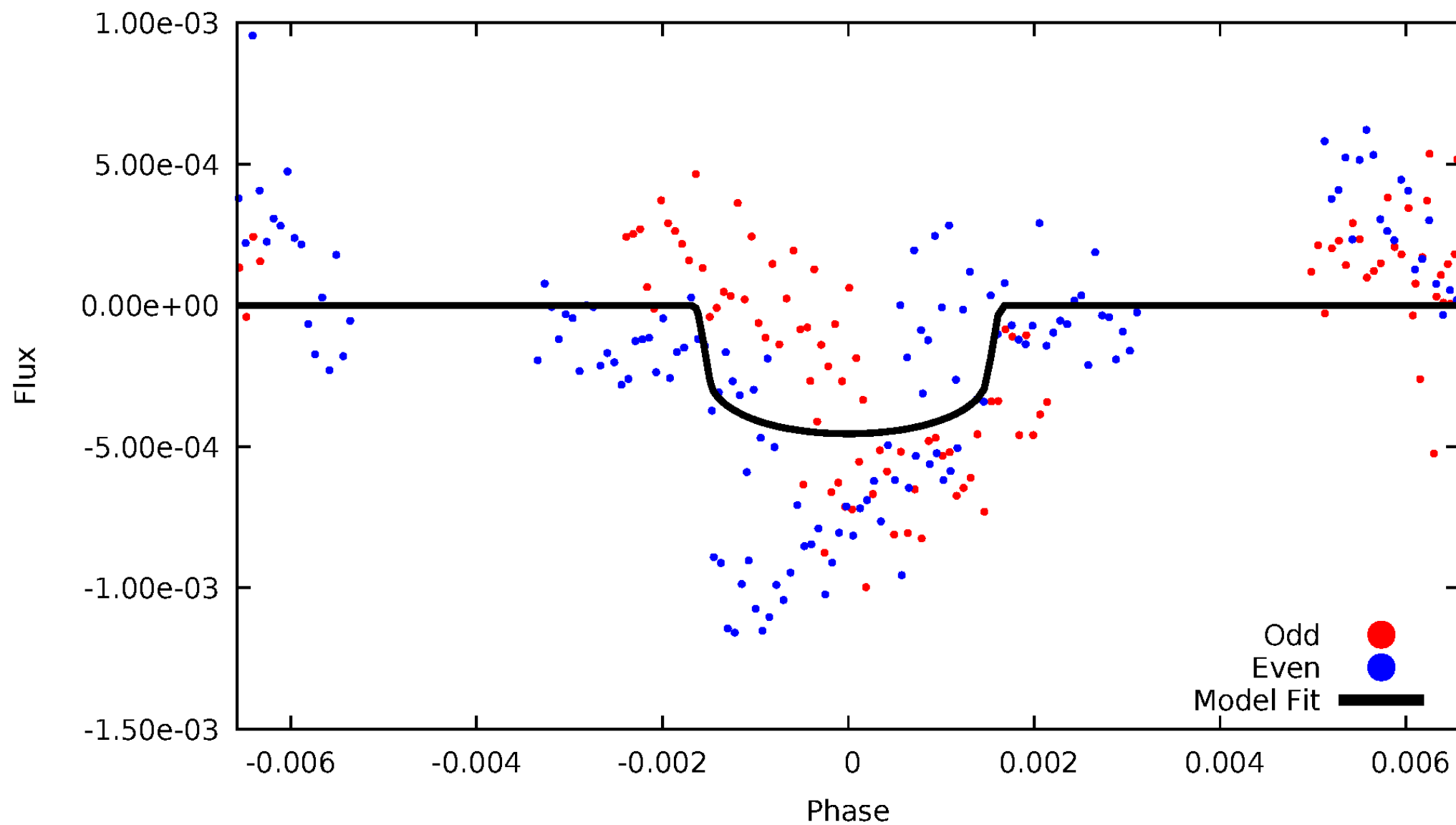


TCE 009120066-03



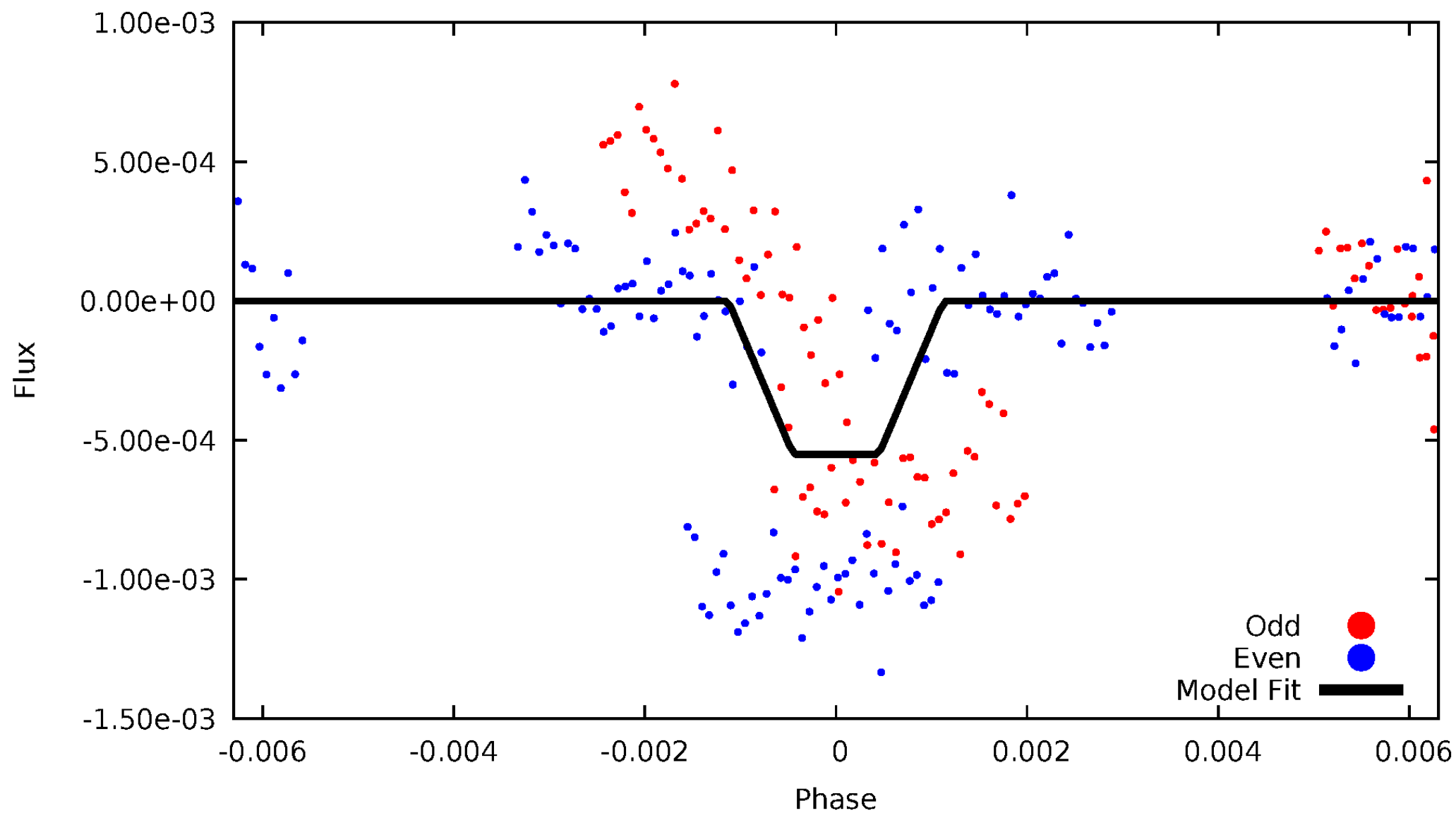
DV Odd/Even

TCE 009120066-03



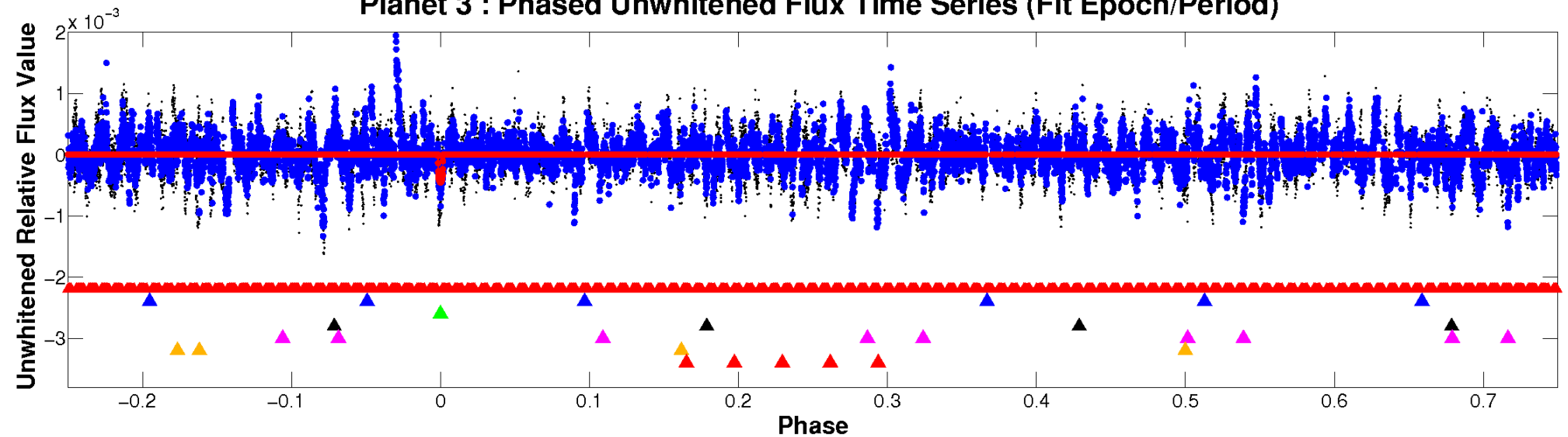
ALT Odd/Even

TCE 009120066-03

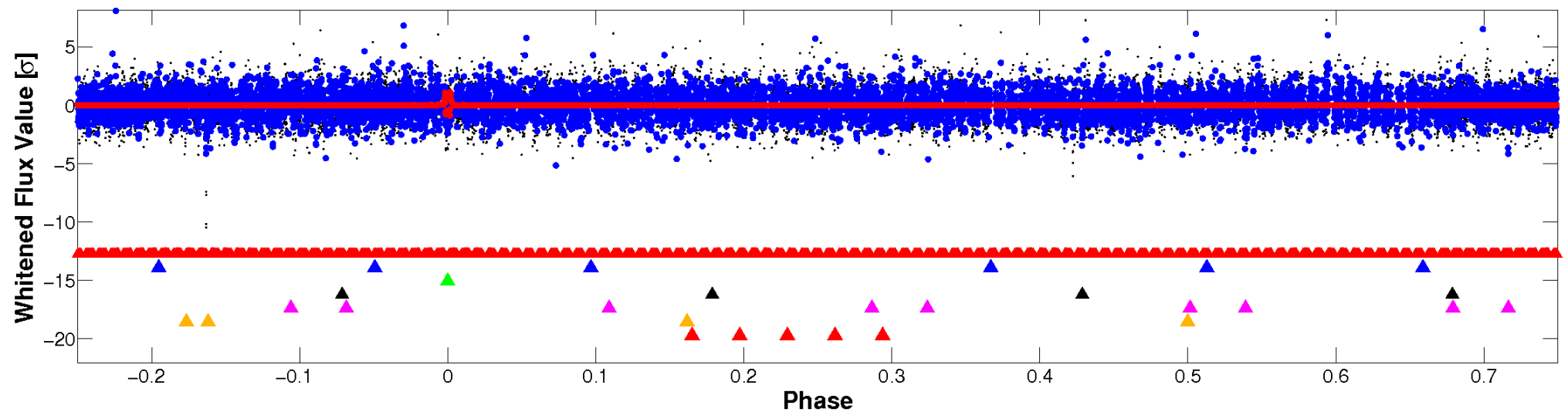


Non-Whitened Vs. Whitened Light Curve

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

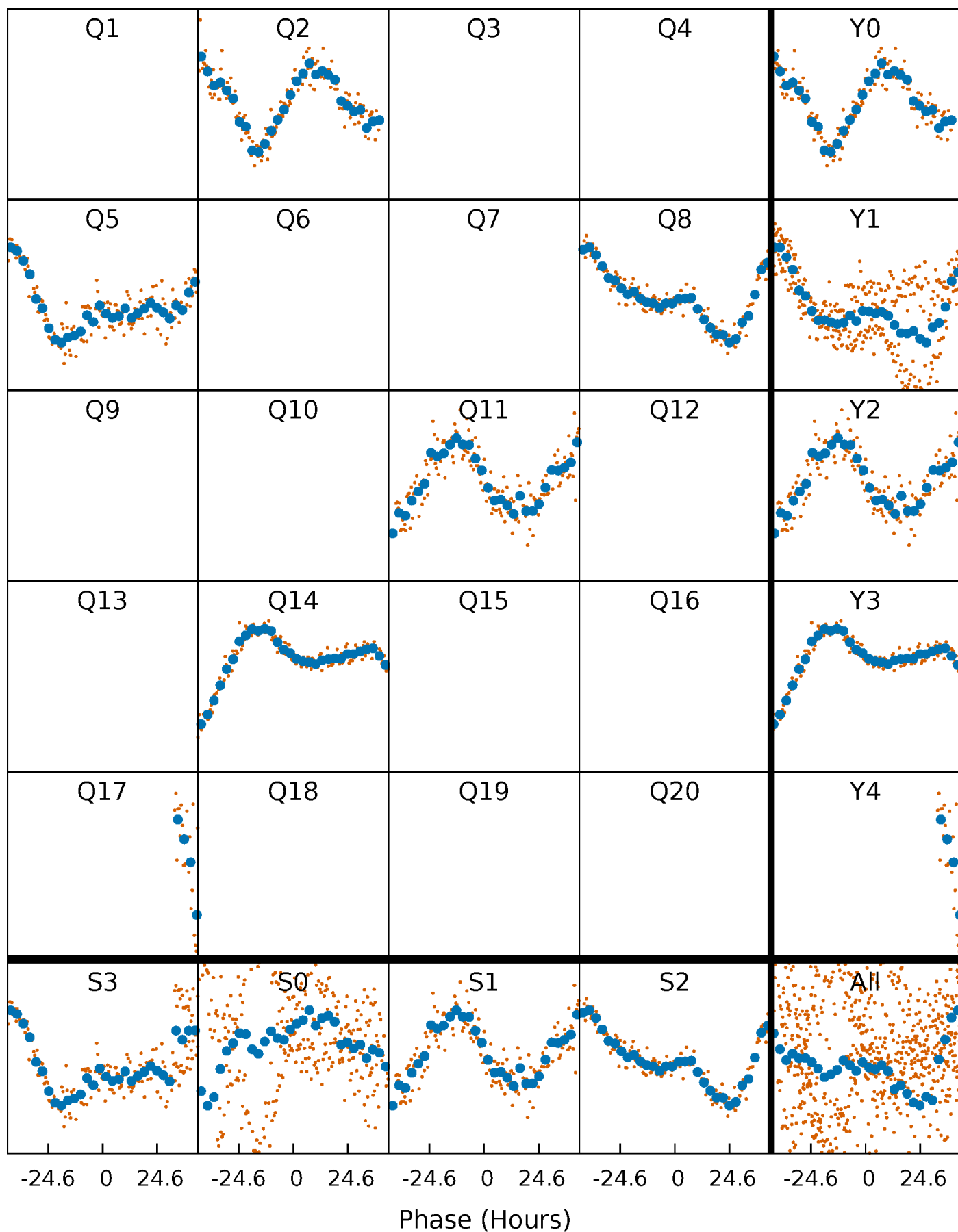


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



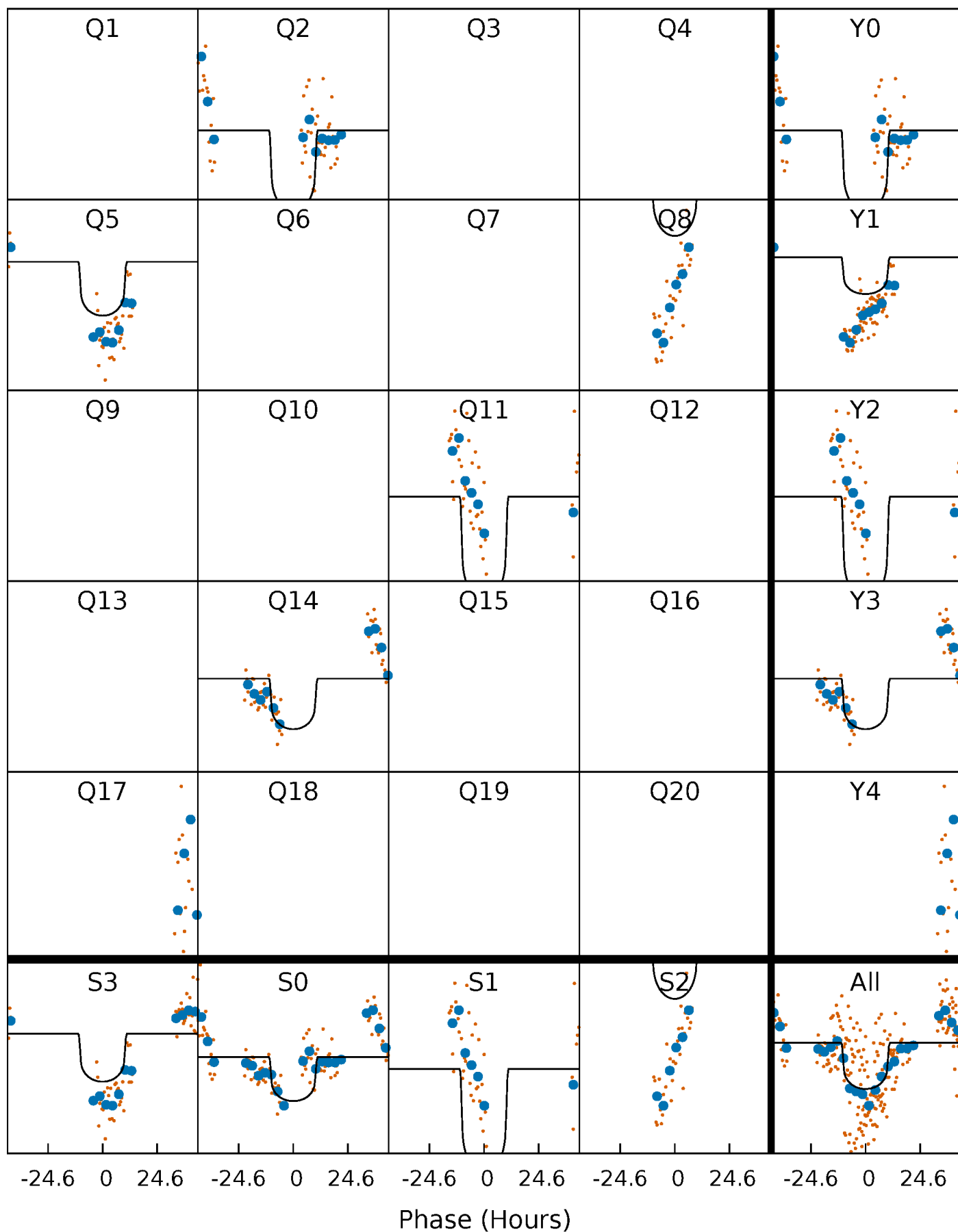
PDC Quarter-Phased Transit Curves

TCE 009120066-03 $P=272.722308$ Days $T_0=221.862472$ (BKJD)



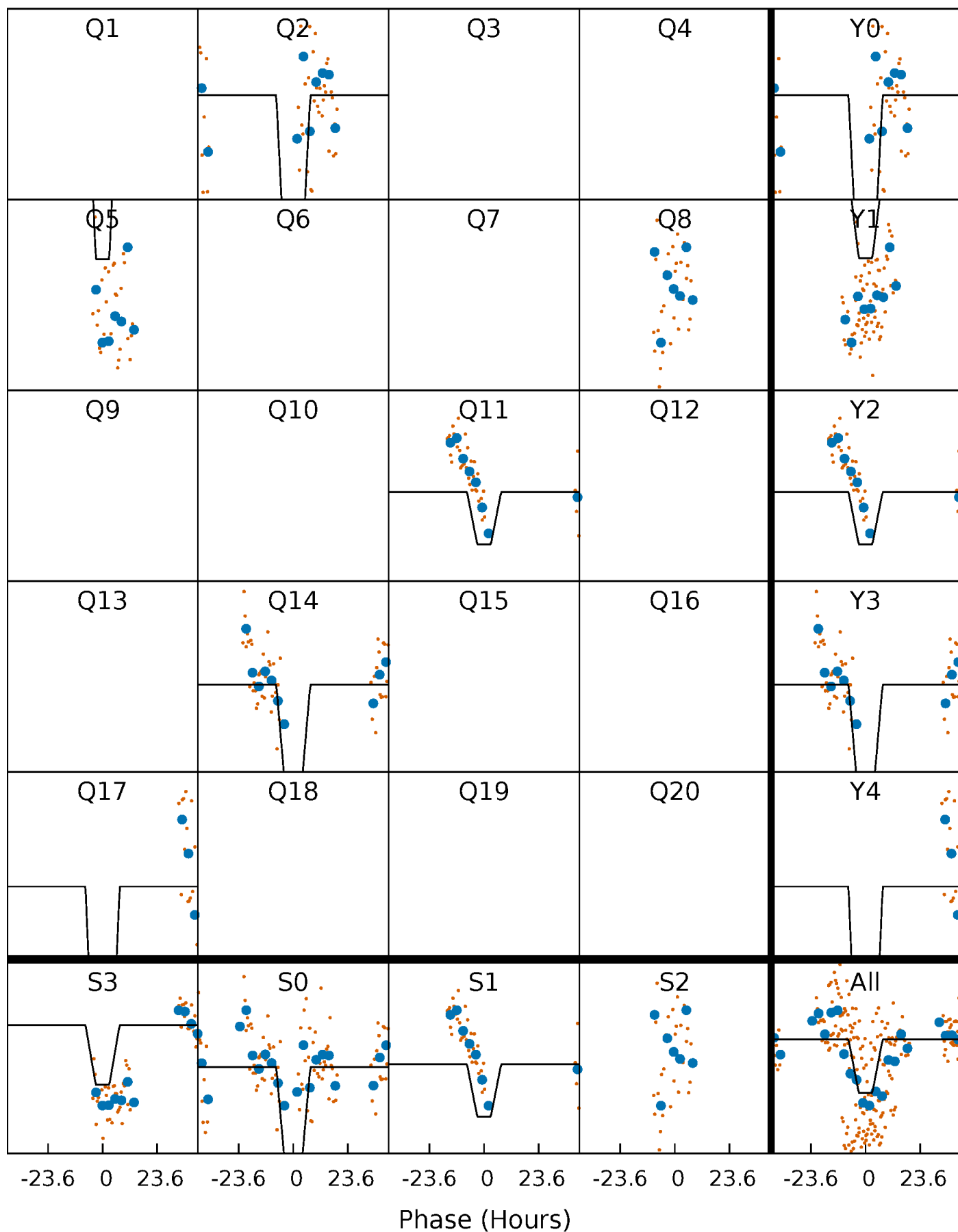
DV Quarter-Phased Transit Curves

TCE 009120066-03 $P=272.722308$ Days $T_0=221.862472$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

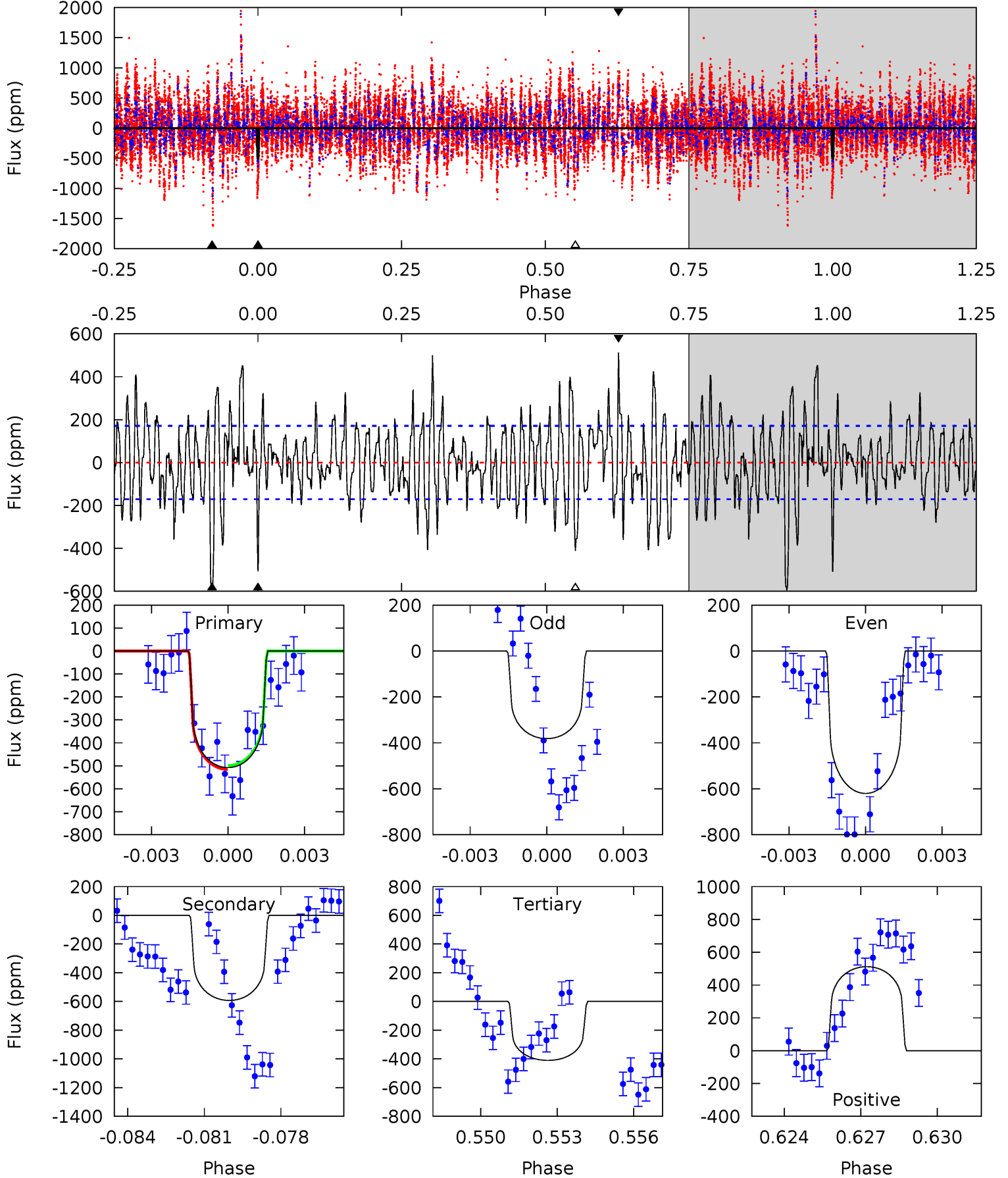
TCE 009120066-03 P=272.706292 Days $T_0=221.922910$ (BKJD)



DV Model-Shift Uniqueness Test

009120066-03, P = 272.722308 Days, E = 221.862472 Days

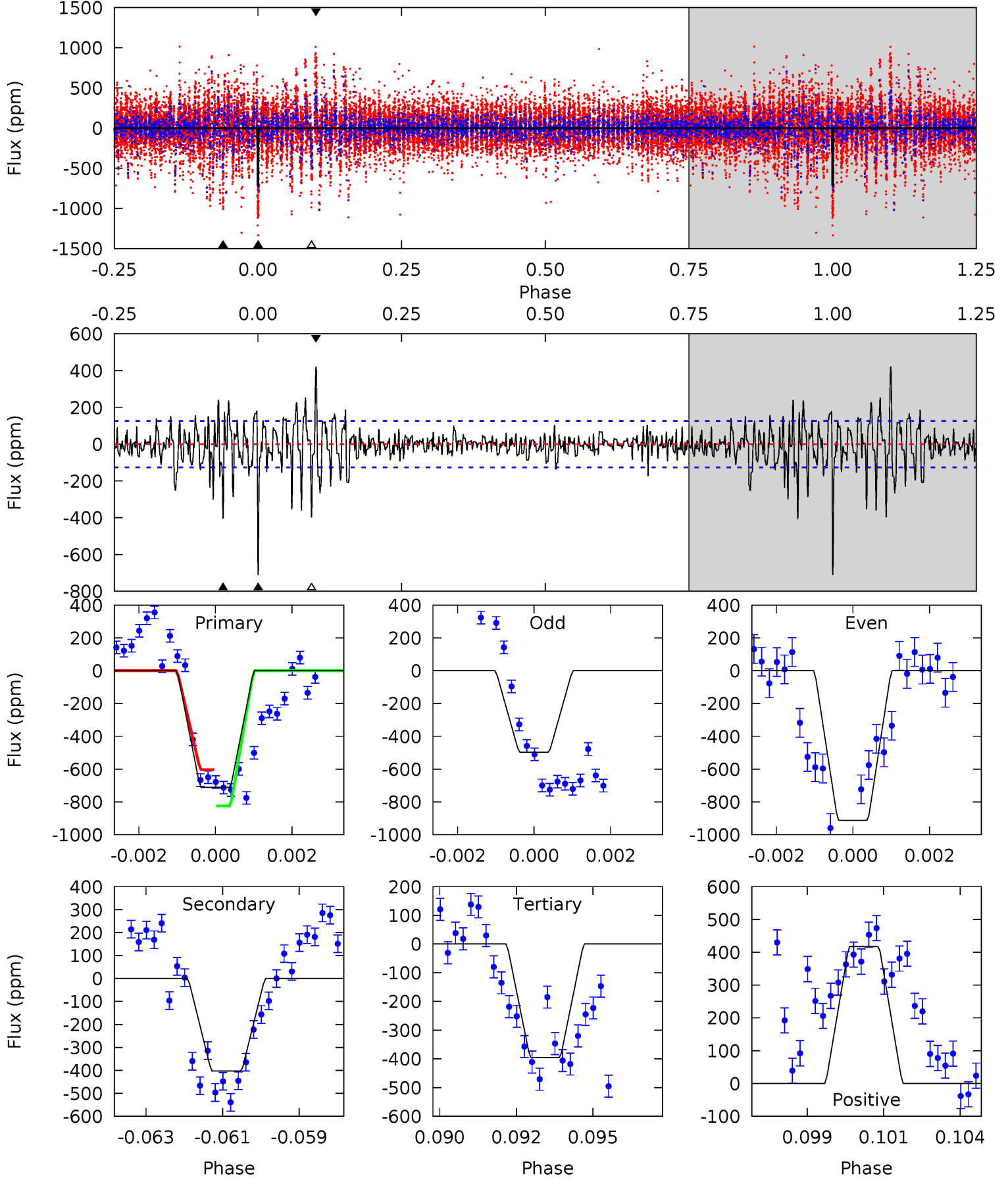
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.6	18.2	12.6	15.7	5.24	2.94	5.01	2.98	-0.13	5.59	2.48	3.64	0.96	0.46	0.26



Alt Model-Shift Uniqueness Test

009120066-03, P = 272.706292 Days, E = 221.922910 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.9	17.0	16.6	17.6	5.30	3.05	3.35	13.3	12.4	0.32	-0.61	9.18	2.11	0.37	4.62



Stellar Parameters For KIC 009120066

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5750^{+190}_{-173}	$3.979^{+0.443}_{-0.148}$	$-0.100^{+0.300}_{-0.300}$	$1.727^{+0.402}_{-0.746}$	$1.037^{+0.140}_{-0.155}$	$0.284^{+1.102}_{-0.115}$
	+3%/-3%	+11%/-4%	+300%/-300%	+23%/-43%	+14%/-15%	+388%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009120066-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-593 ± 33	$3.88^{+0.89}_{-0.99}$	506^{+39}_{-61}	6122^{+545}_{-434}	15110^{+11805}_{-5044}
Alt.	-403 ± 24	$4.23^{+0.94}_{-1.05}$	503^{+40}_{-57}	5369^{+436}_{-355}	8919^{+6391}_{-3182}

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

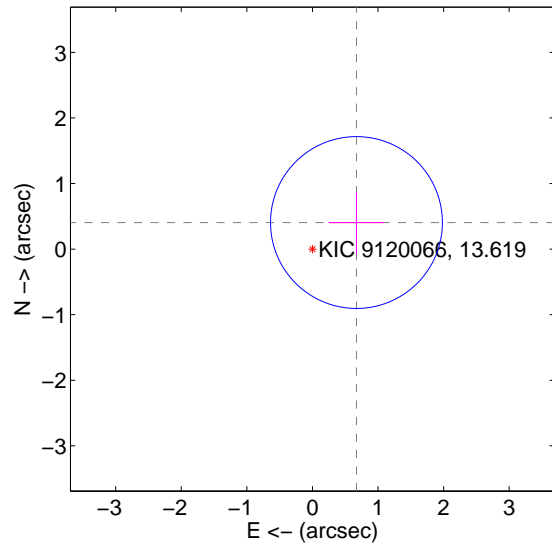
Supplemental centroid analysis for 009120066-03. Kepler magnitude: 13.62. Transit SNR 7.94

There are 0 quarters with good PRF difference image offsets

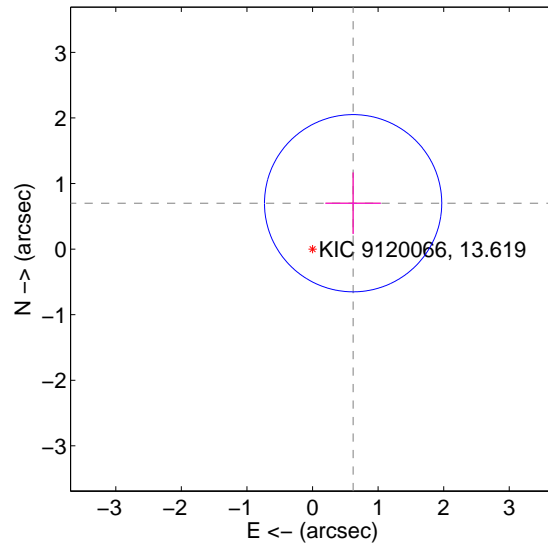
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.784 ± 0.437	1.79	-0.671 ± 0.424	0.405 ± 0.470
PRF-fit source offset from KIC position	0.934 ± 0.450	2.07	-0.619 ± 0.424	0.700 ± 0.470
photometric centroid source offset	1.52 ± 0.52	2.94	1.39 ± 0.53	-0.63 ± 0.47

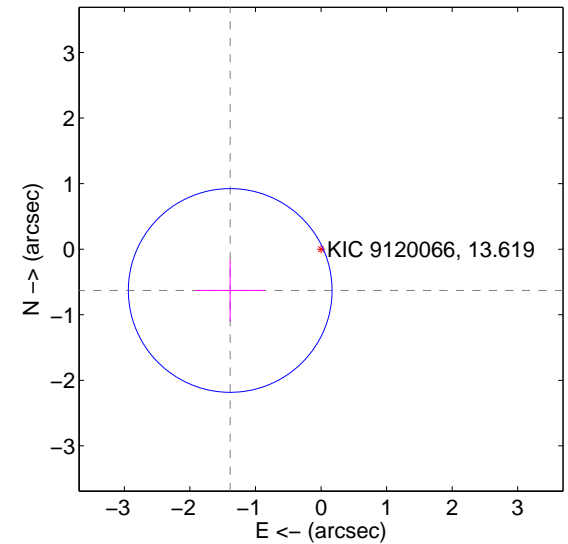
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

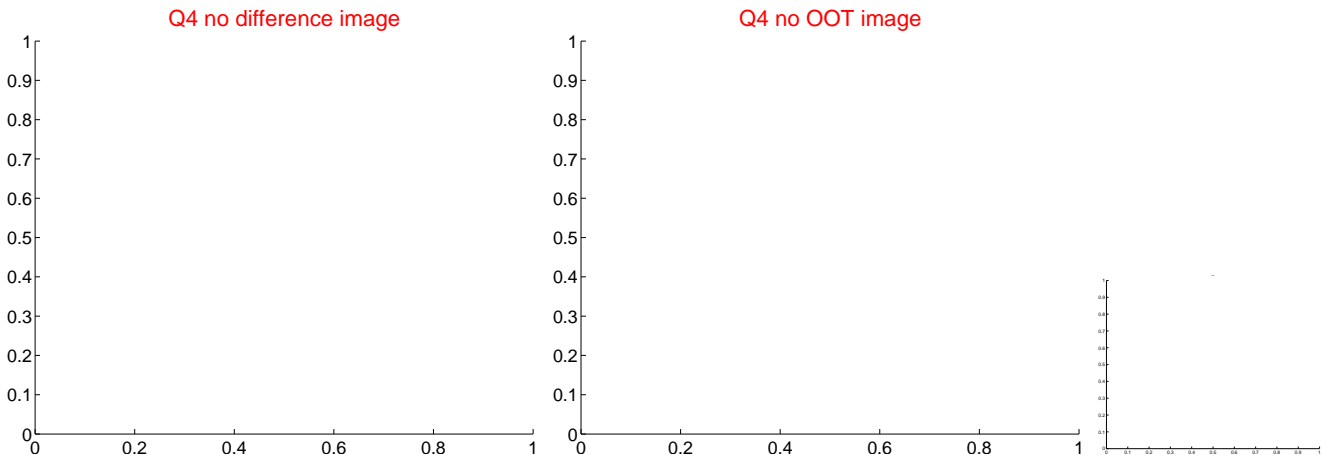
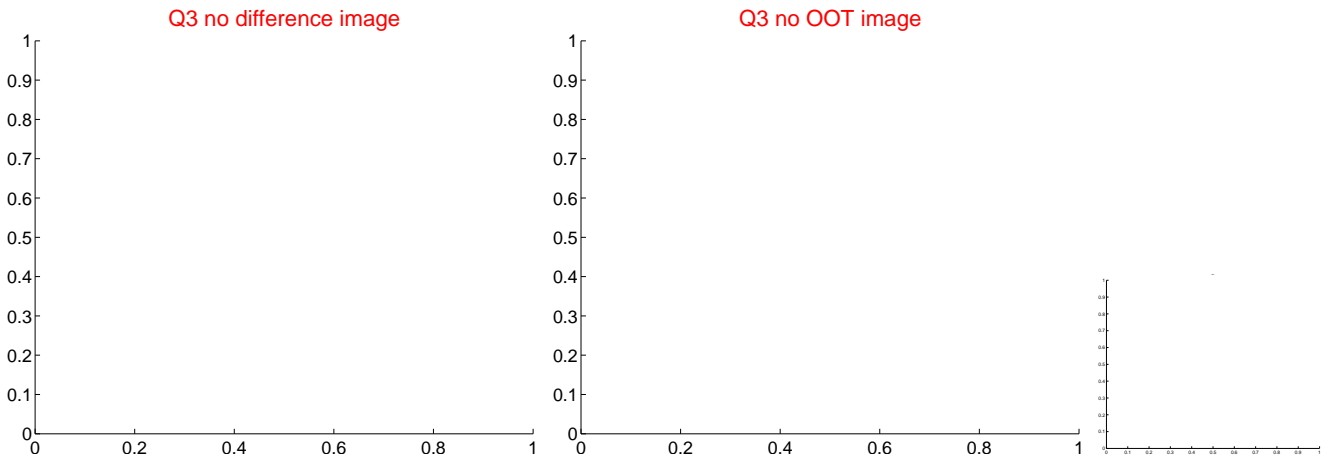
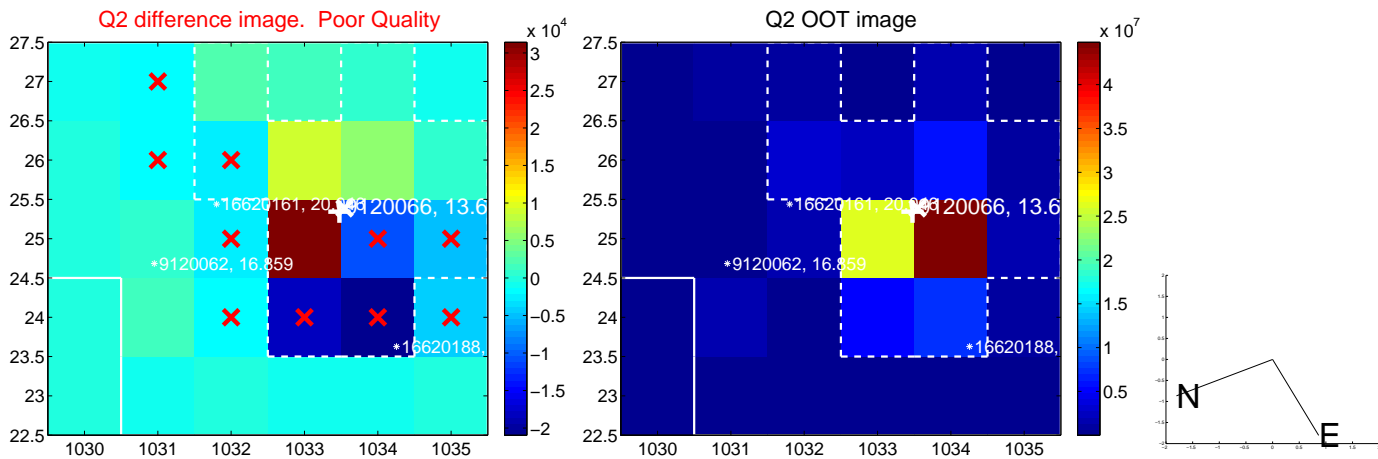
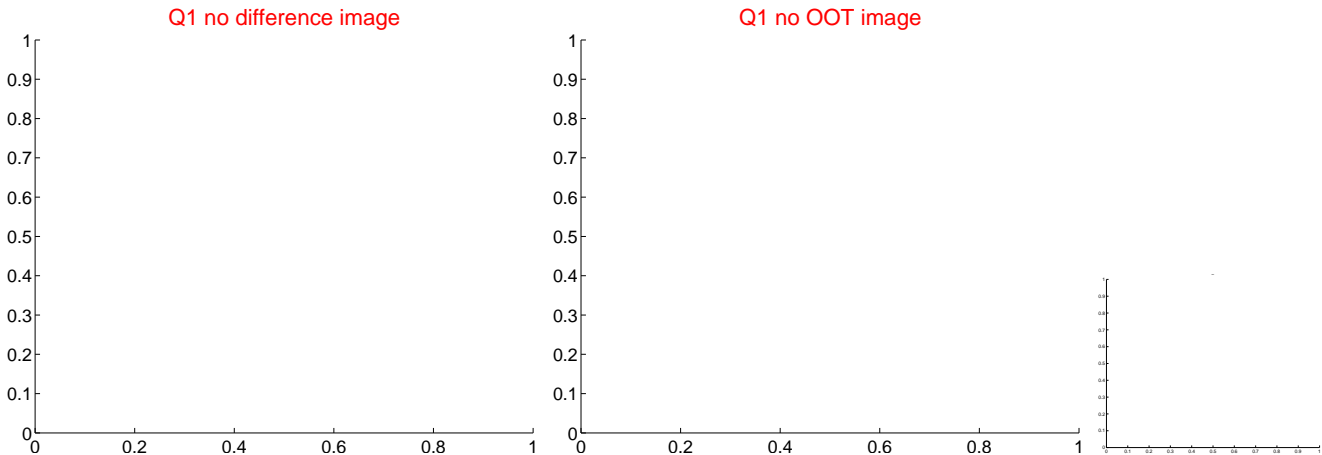


offset from photometric centroids

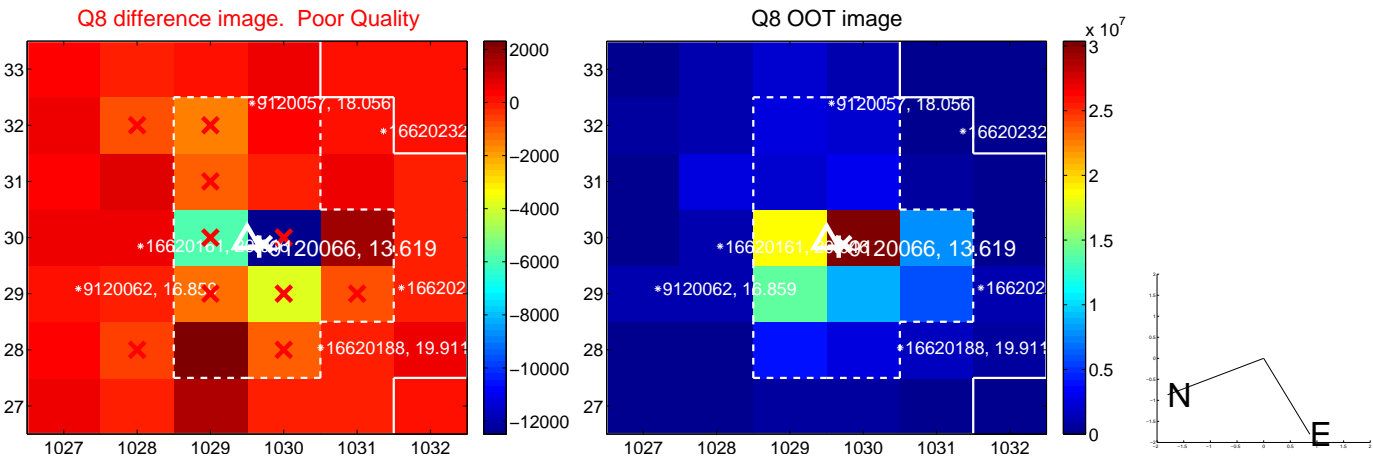
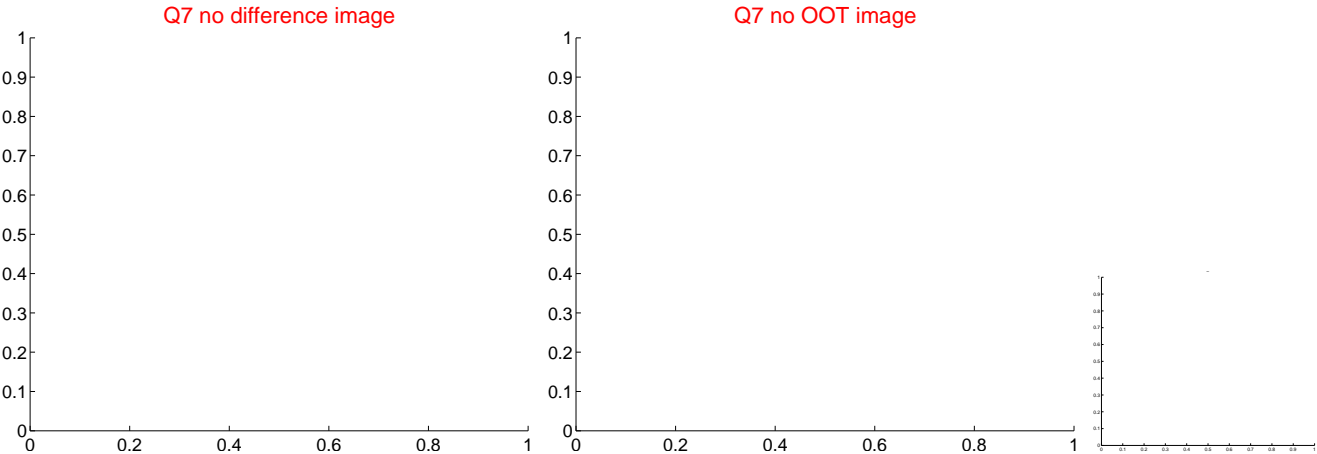
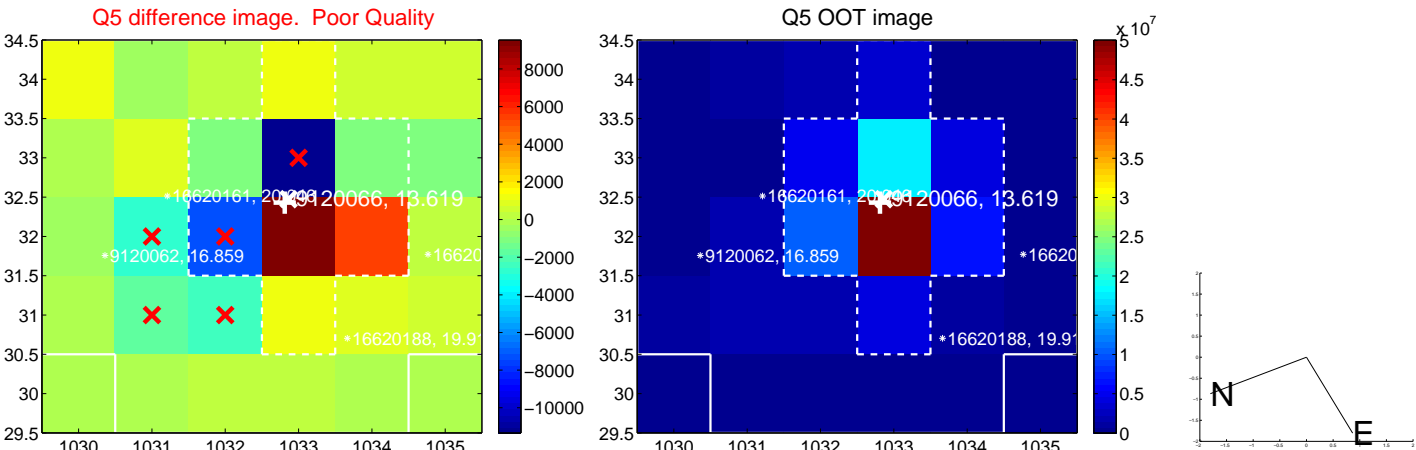


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

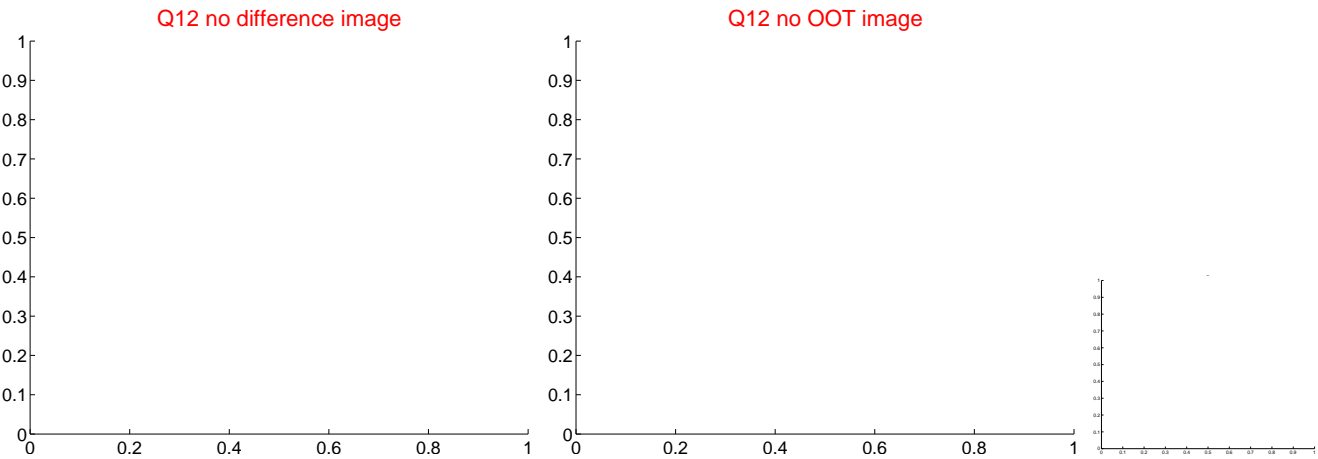
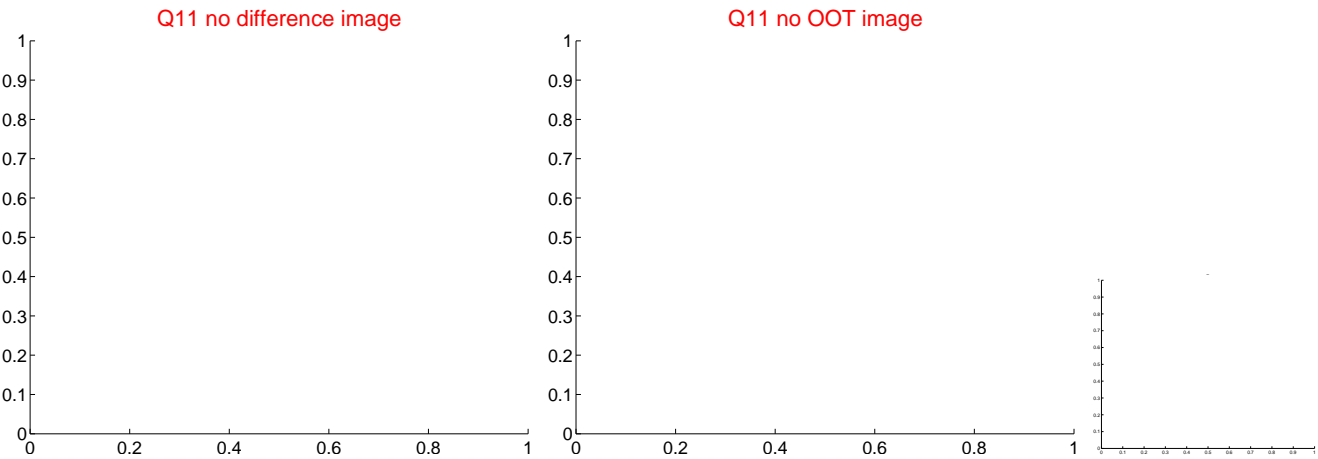
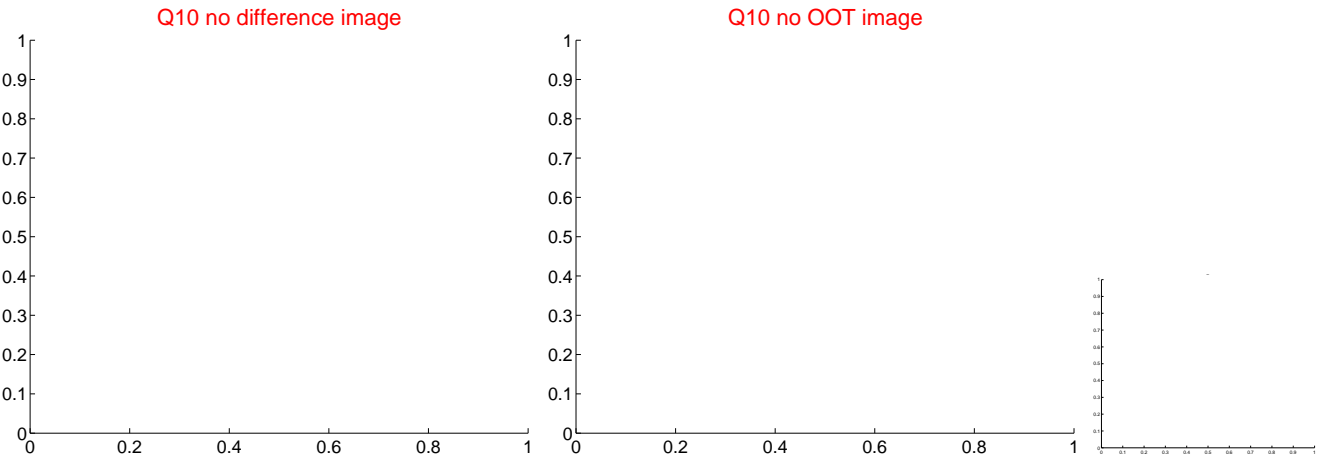
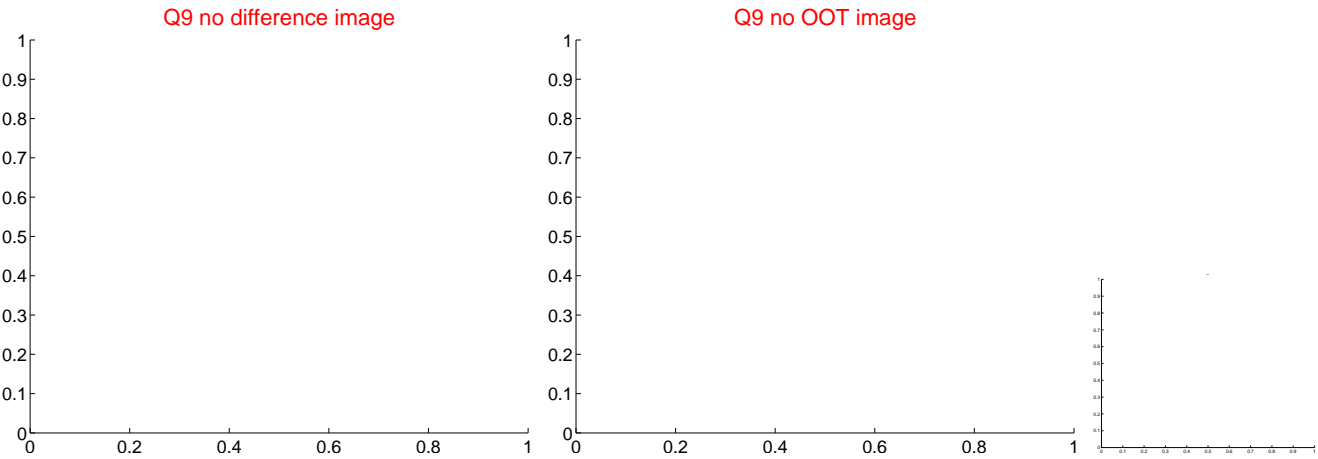
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



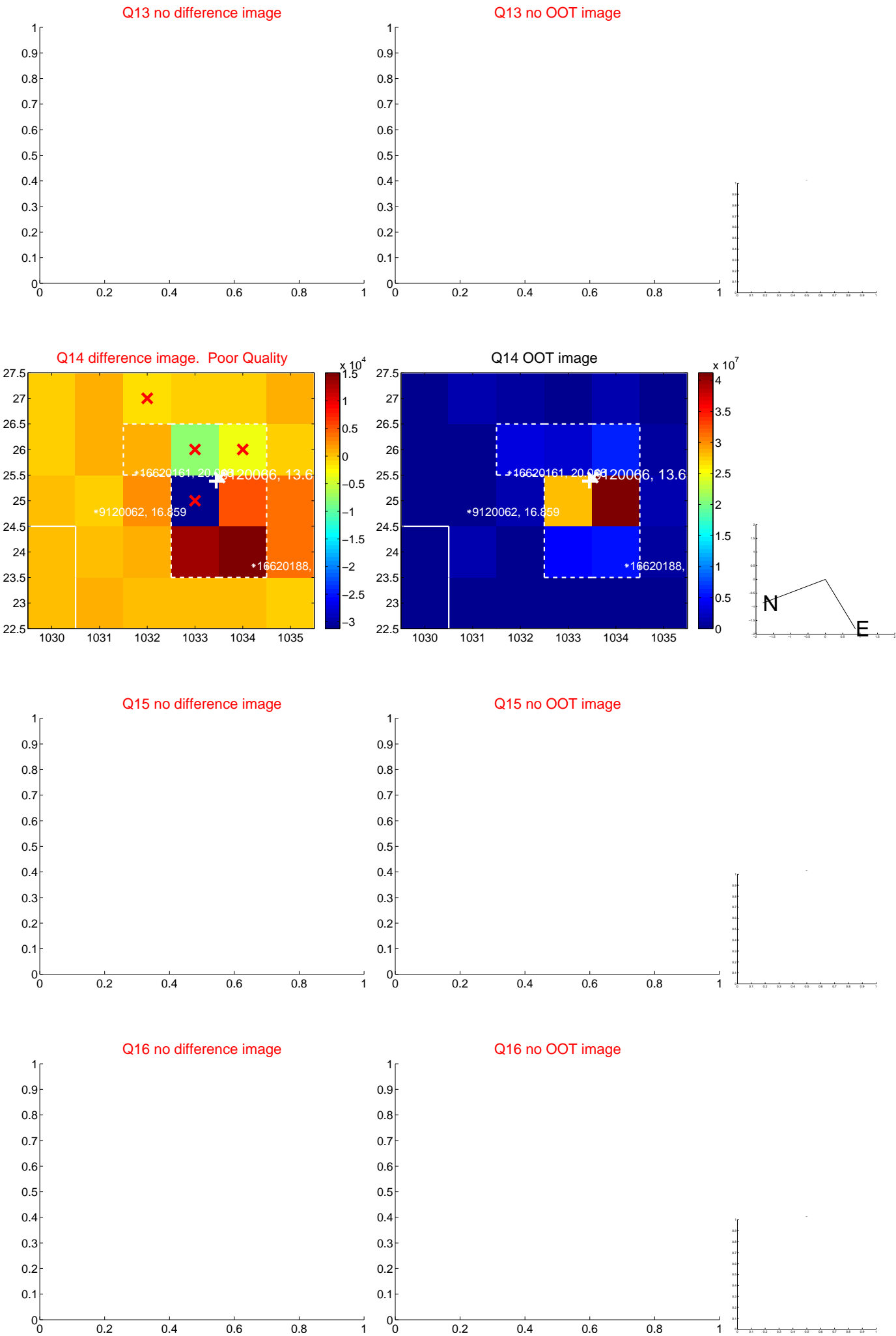
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



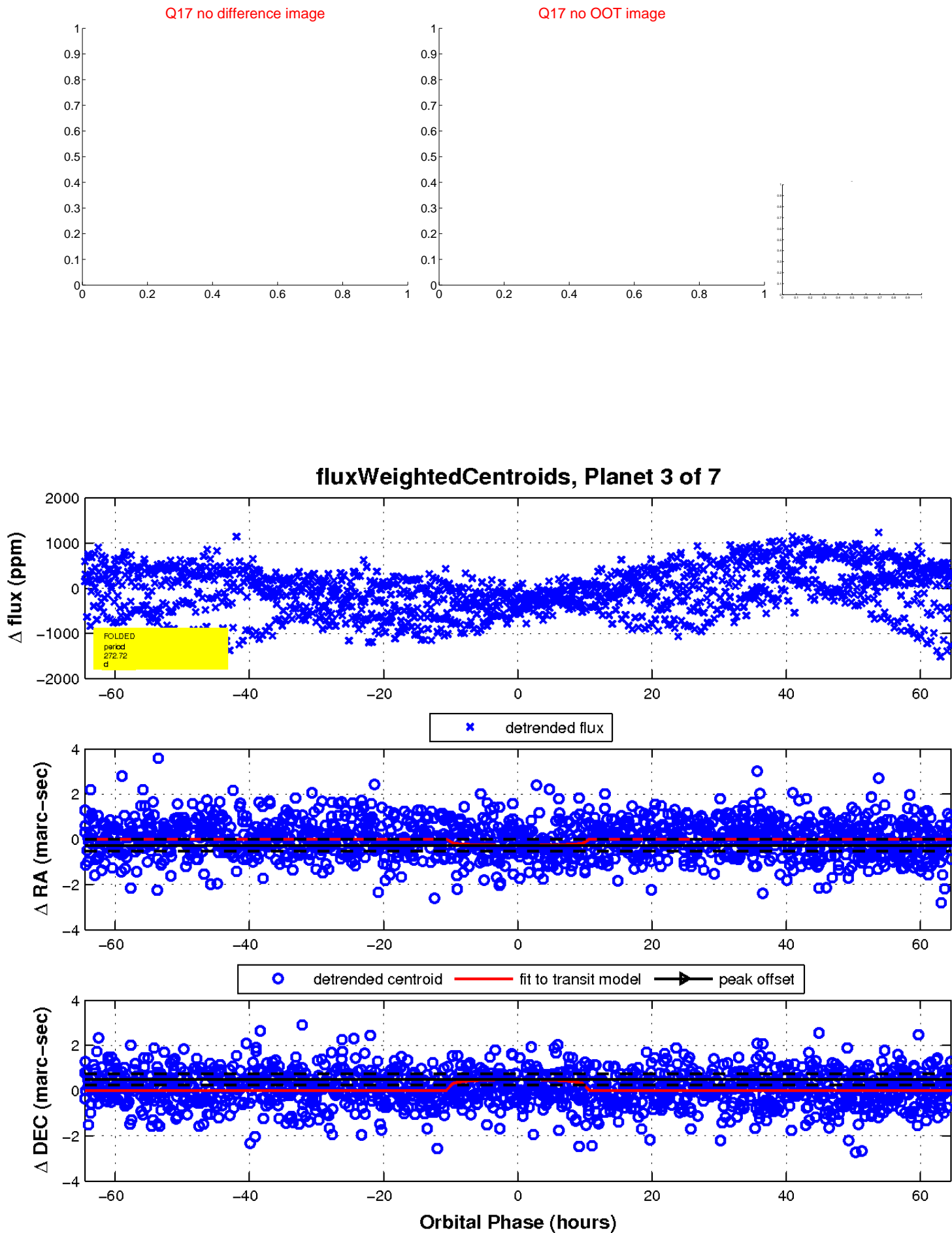
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

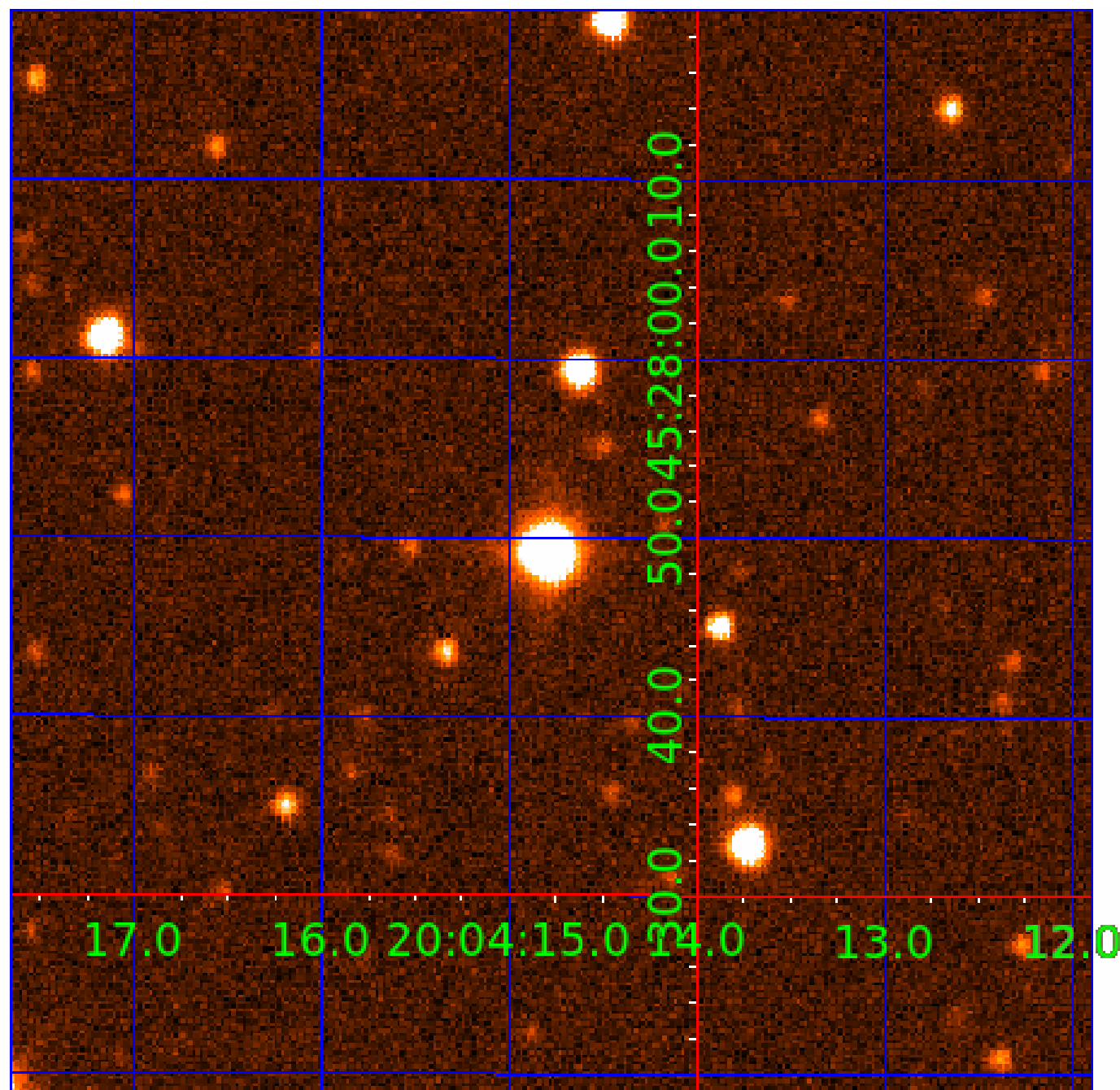


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009120066

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})
009120066-01	OBS	No	2.308947	133.462235	41.2	12.551	7.8	9.9	1.73	5750	1.16	2438.98
009120066-02	OBS	No	232.912176	248.251506	410.6	16.047	10.9	7.0	1.73	5750	3.75	5.19
009120066-03	OBS	No	272.722309	221.862472	454.5	21.520	10.4	7.9	1.73	5750	4.04	4.21
009120066-04	OBS	No	68.179339	134.255248	138.3	17.757	9.4	3.7	1.73	5750	2.15	26.72
009120066-06	OBS	No	364.962490	173.721434	293.5	3.533	7.6	7.4	1.73	5750	3.52	2.85
009120066-07	OBS	No	281.499235	266.893089	285.3	15.289	8.8	5.0	1.73	5750	3.04	4.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009120066-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
009120066-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009120066-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009120066-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
009120066-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009120066-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

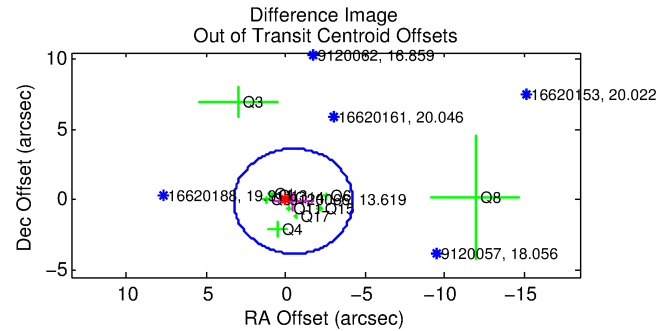
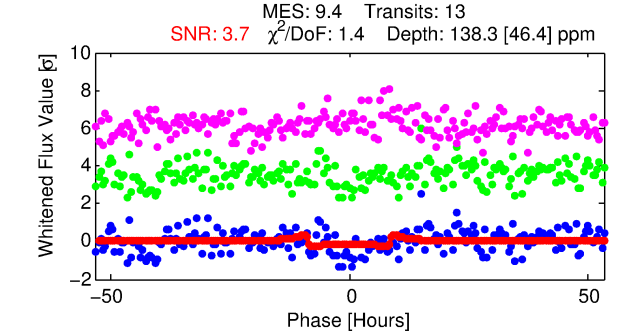
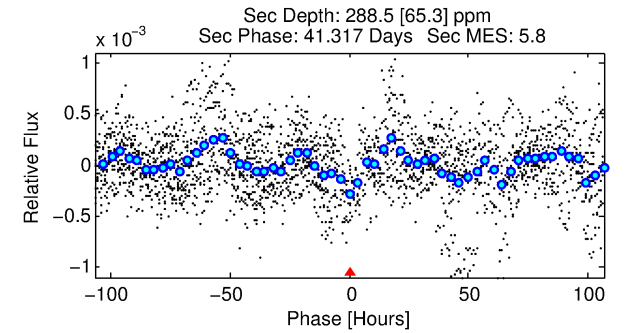
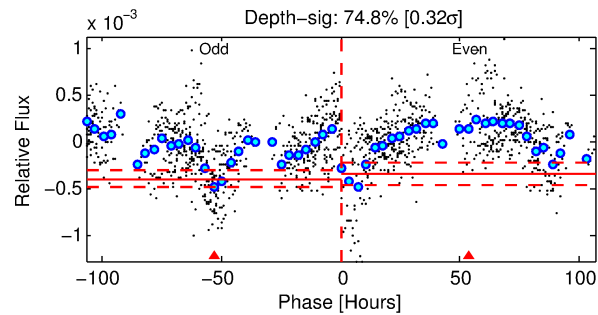
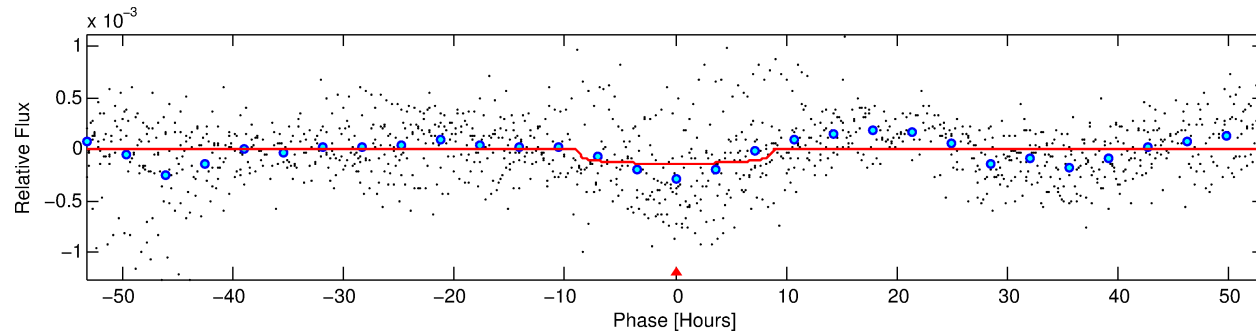
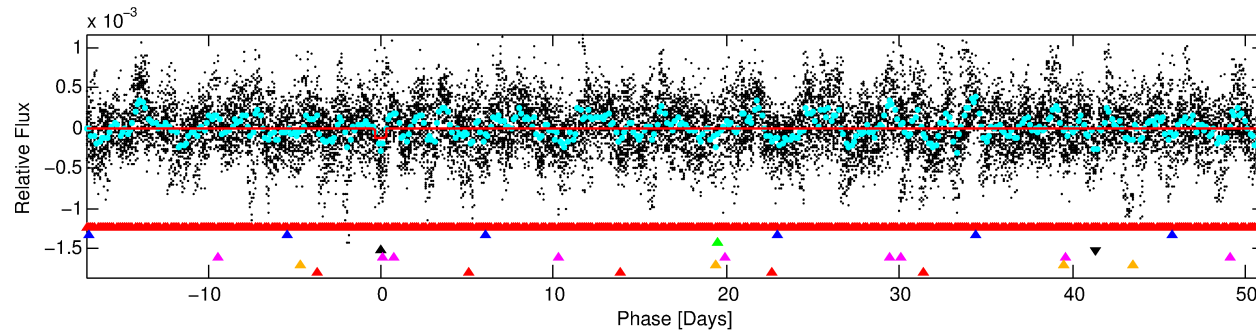
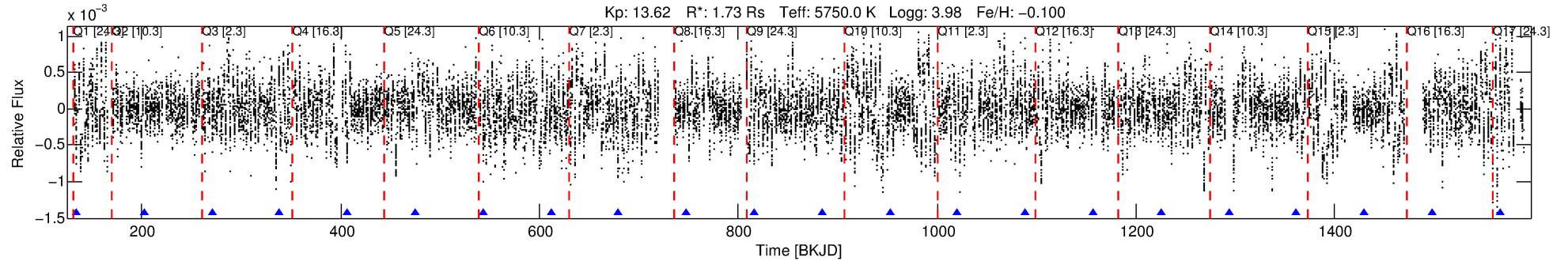
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009120066-04

No Significant Match Found

DV One-Page Summary

KIC: 9120066 Candidate: 4 of 7 Period: 68.179 d



DV Fit Results:

Period = 68.17934 [0.00214] d
Epoch = 134.2552 [0.0279] BKJD
Rp/R* = 0.0114 [0.0064]
a/R* = 22.35 [53.62]
b = 0.67 [2.02]
Seff = 26.72 [20.05]
Teq = 580 [109] K
Rp = 2.15 [1.52] Re
a = 0.3306 [0.1473] AU
Ag = 3762.95 [5119.51] [0.73σ]
Teffp = 7021 [2019] K [3.19σ]

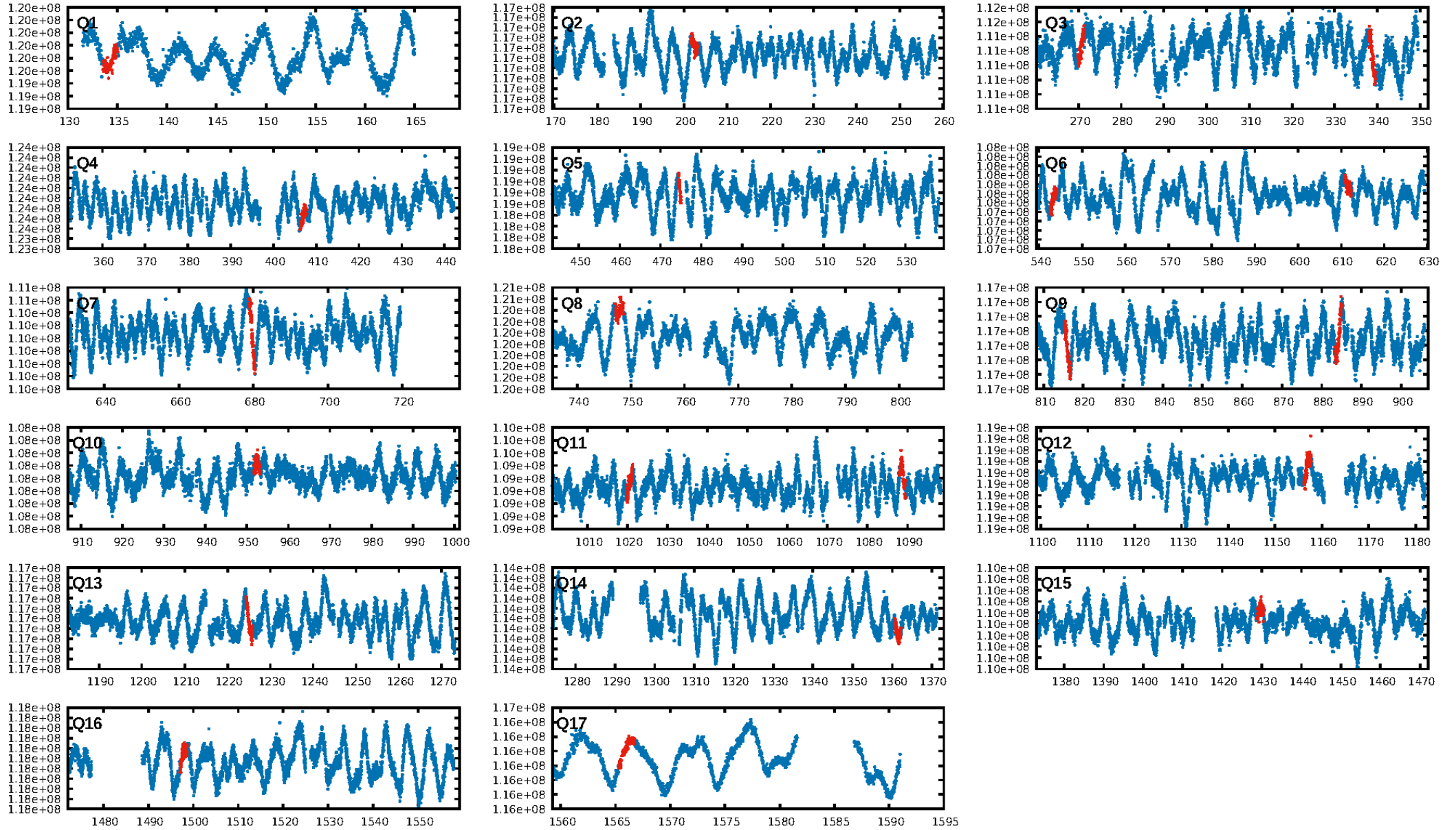
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [72.70σ]
LongPeriod-sig: 100.0% [66.72σ]
ModelChiSquare2-sig: 14.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.57e-13
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: -2.051
Centroid-sig: 19.5%
Centroid-so: 0.064 arcsec [0.08σ]
OotOffset-rm: 0.493 arcsec [0.40σ]
KicOffset-rm: 0.462 arcsec [0.49σ]
OotOffset-st: 2/3/2/4 [11]
KicOffset-st: 2/3/2/4 [11]
DiffImageQuality-fgm: 0.36 [4/11]
DiffImageOverlap-fno: 0.00 [0/14]

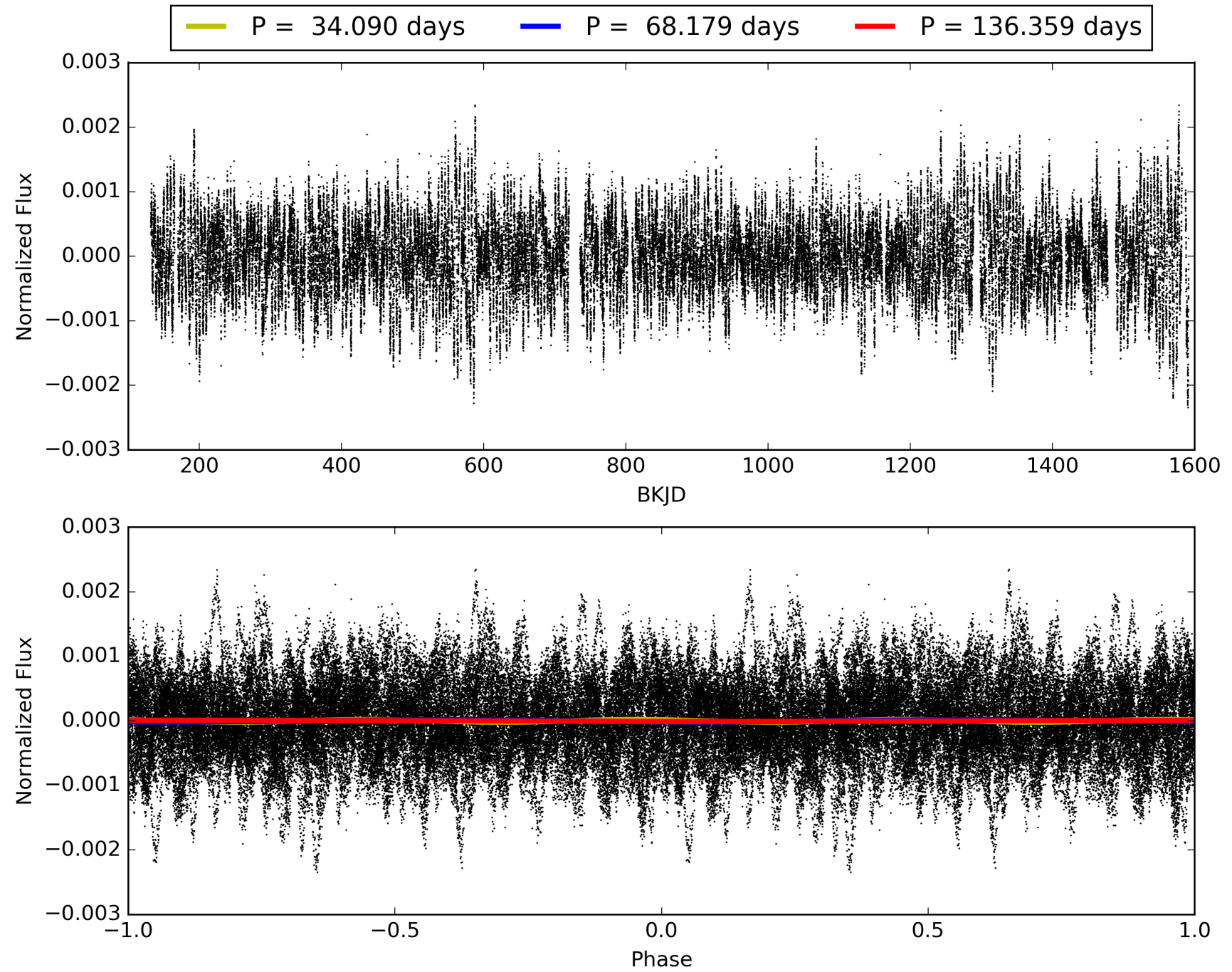
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:12:49 Z

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

TCE 009120066-04, PDC Light Curves

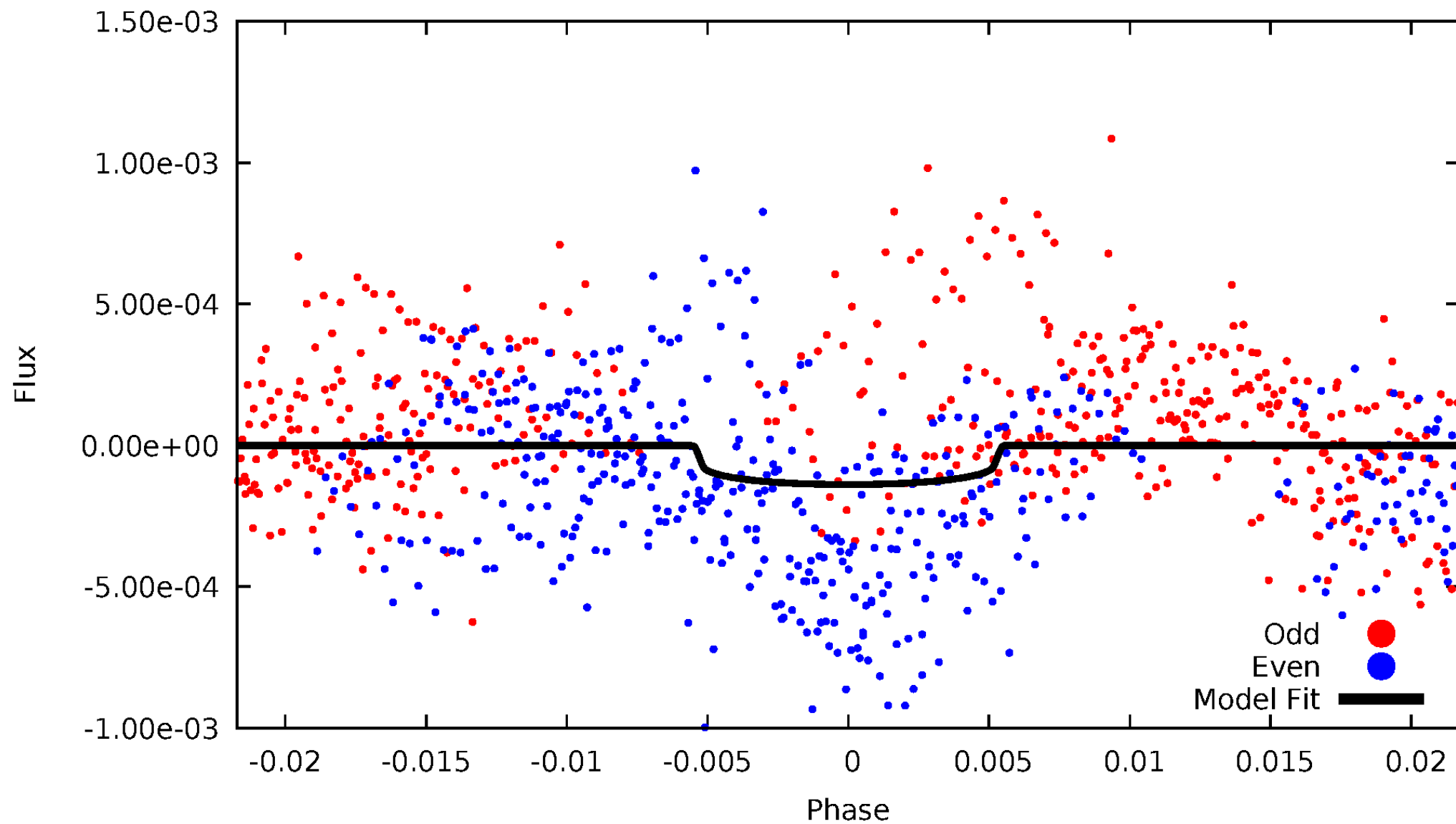


TCE 009120066-04



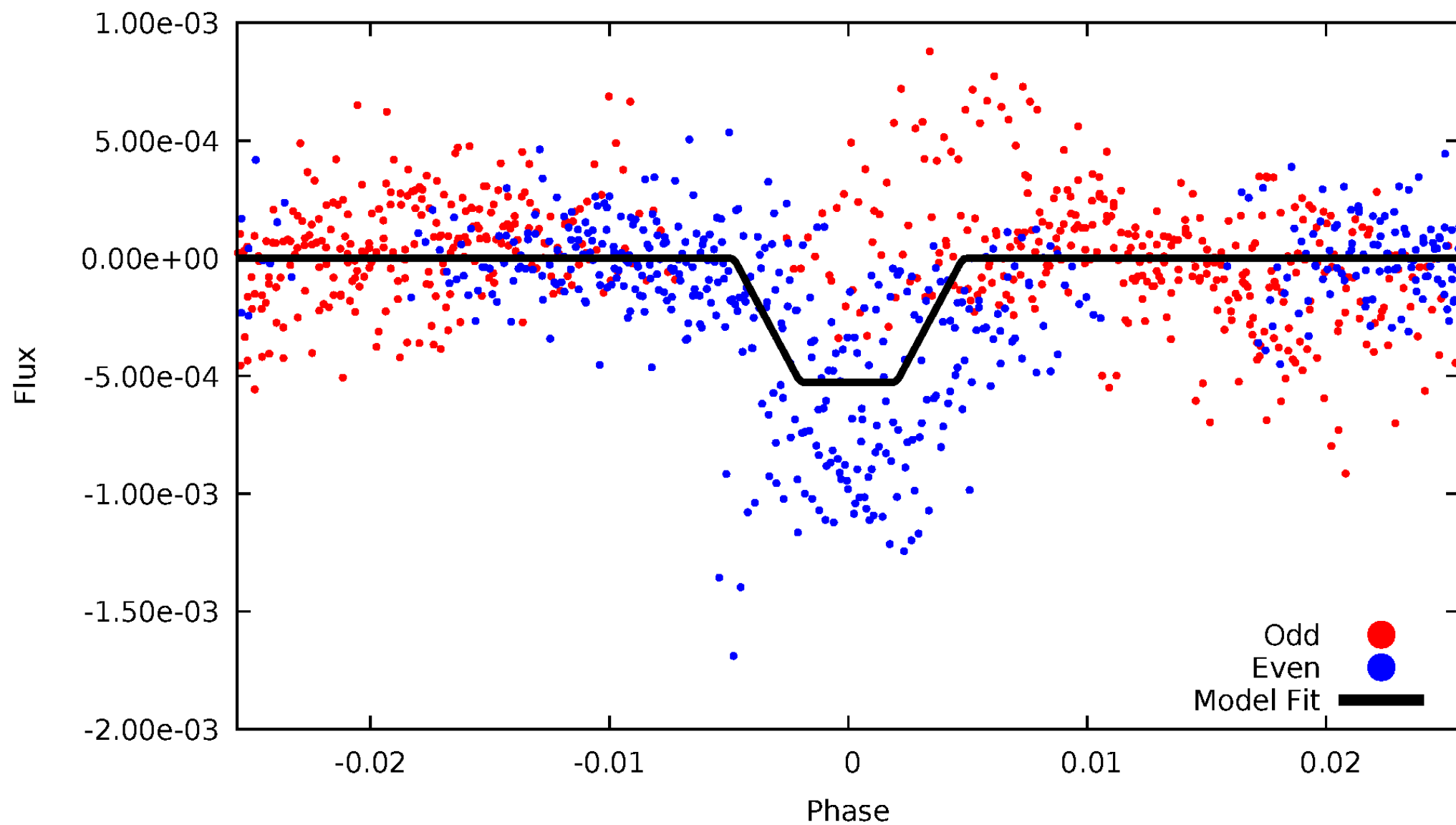
DV Odd/Even

TCE 009120066-04



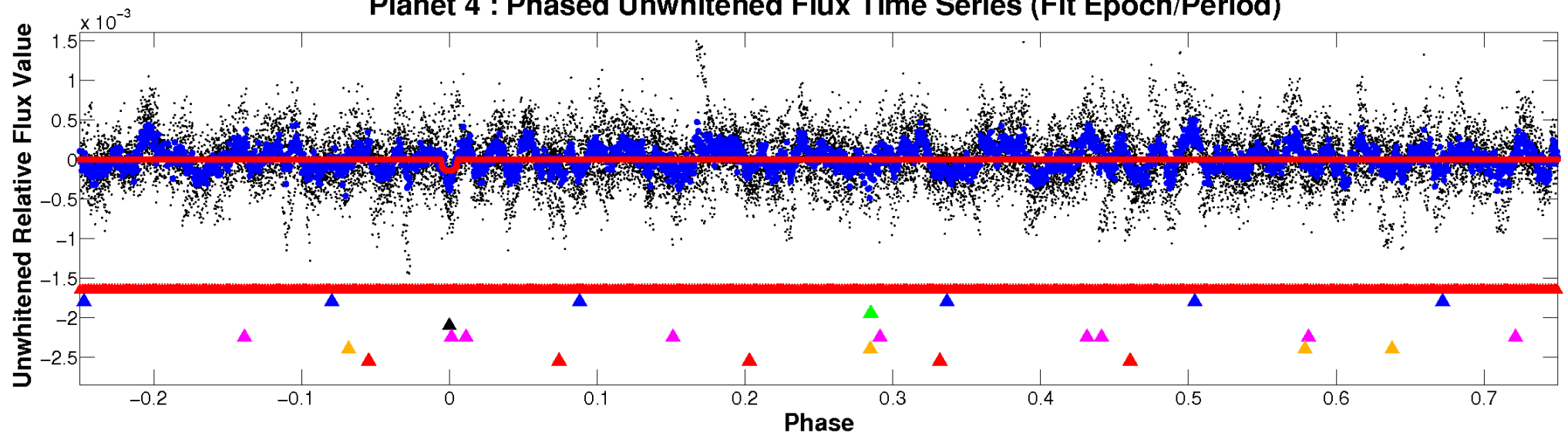
ALT Odd/Even

TCE 009120066-04

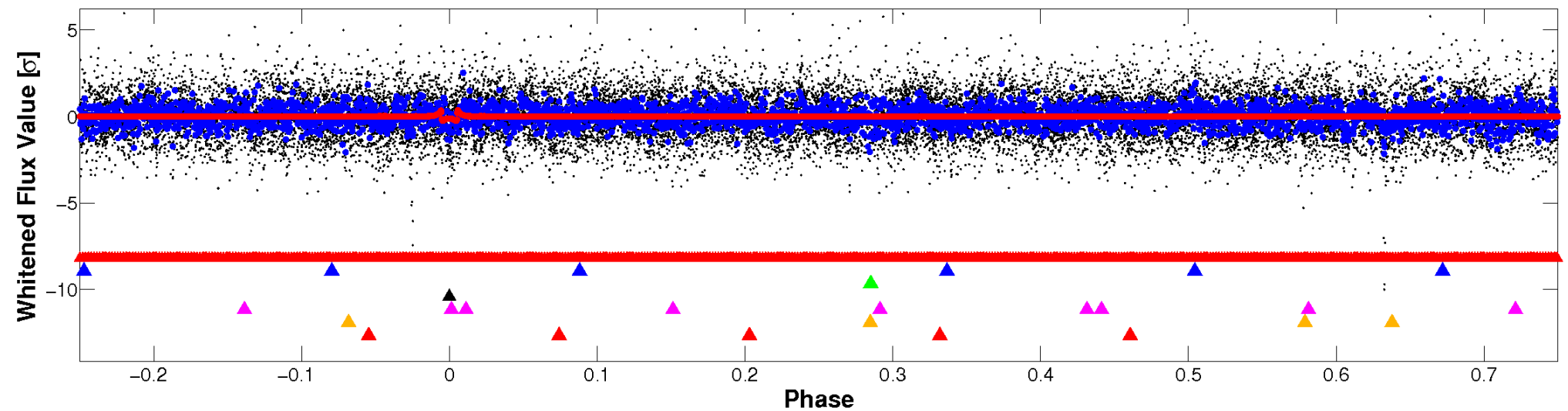


Non-Whitened Vs. Whitened Light Curve

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

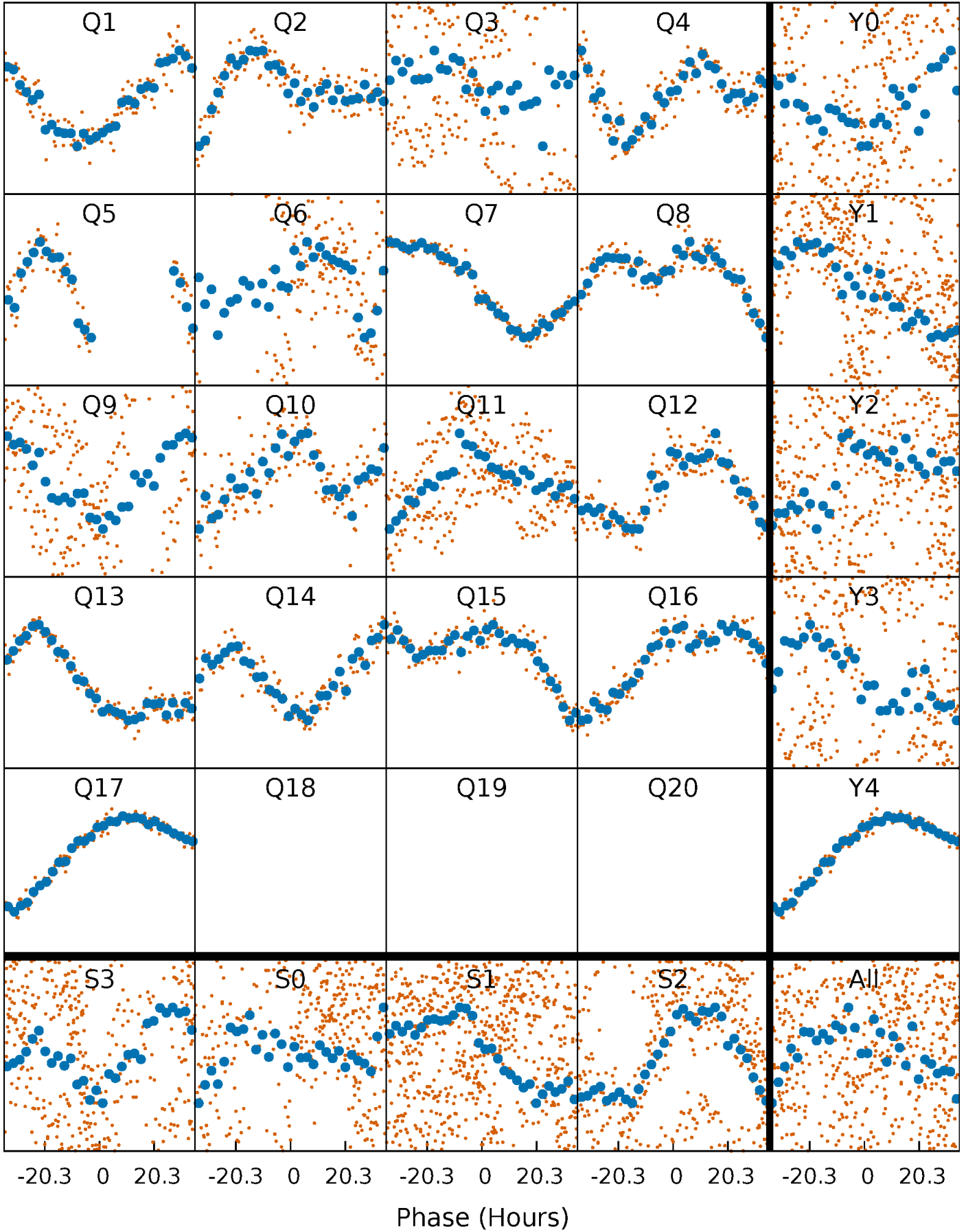


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



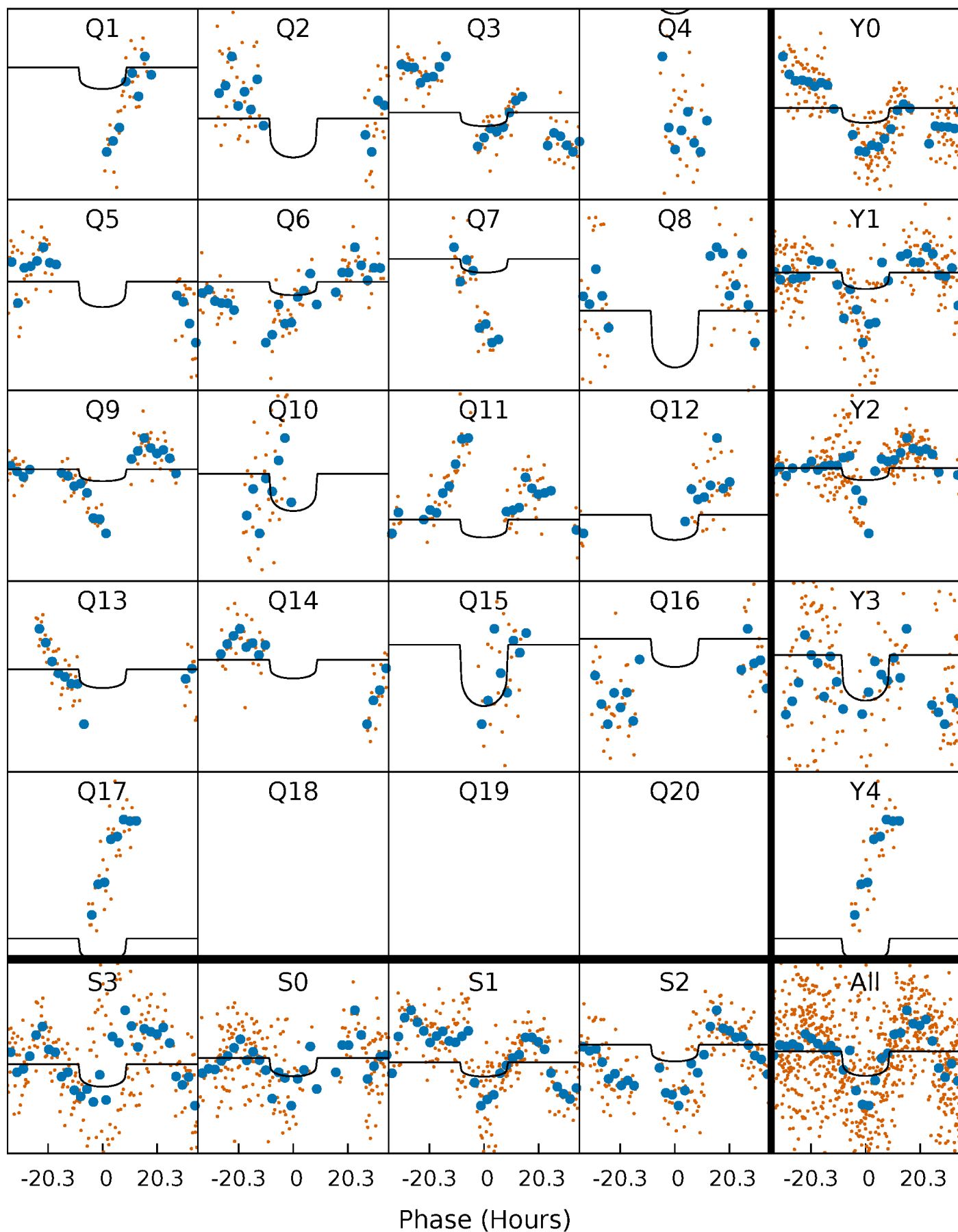
PDC Quarter-Phased Transit Curves

TCE 009120066-04 P= 68.179339 Days $T_0=134.255247$ (BKJD)



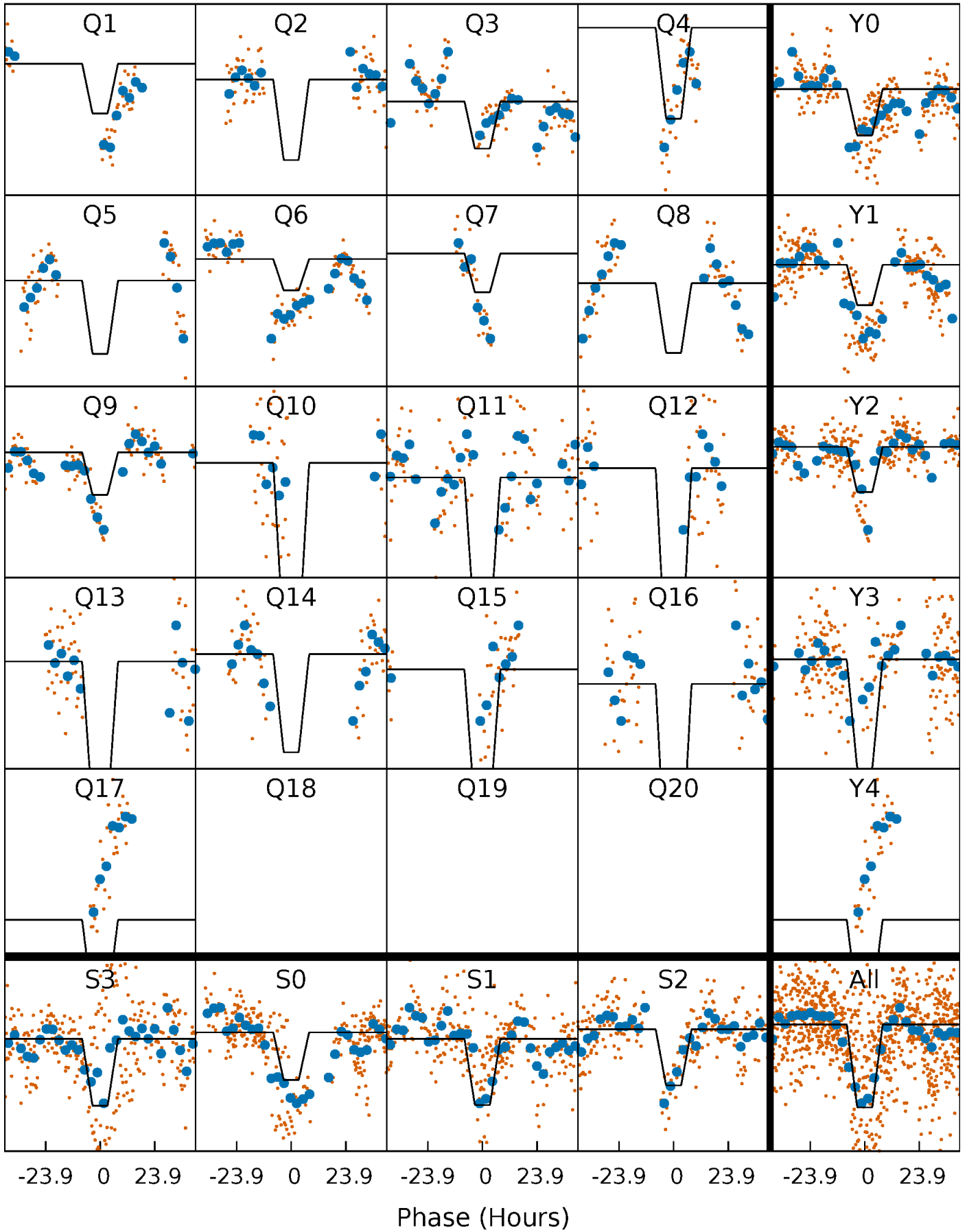
DV Quarter-Phased Transit Curves

TCE 009120066-04 P= 68.179339 Days $T_0=134.255247$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

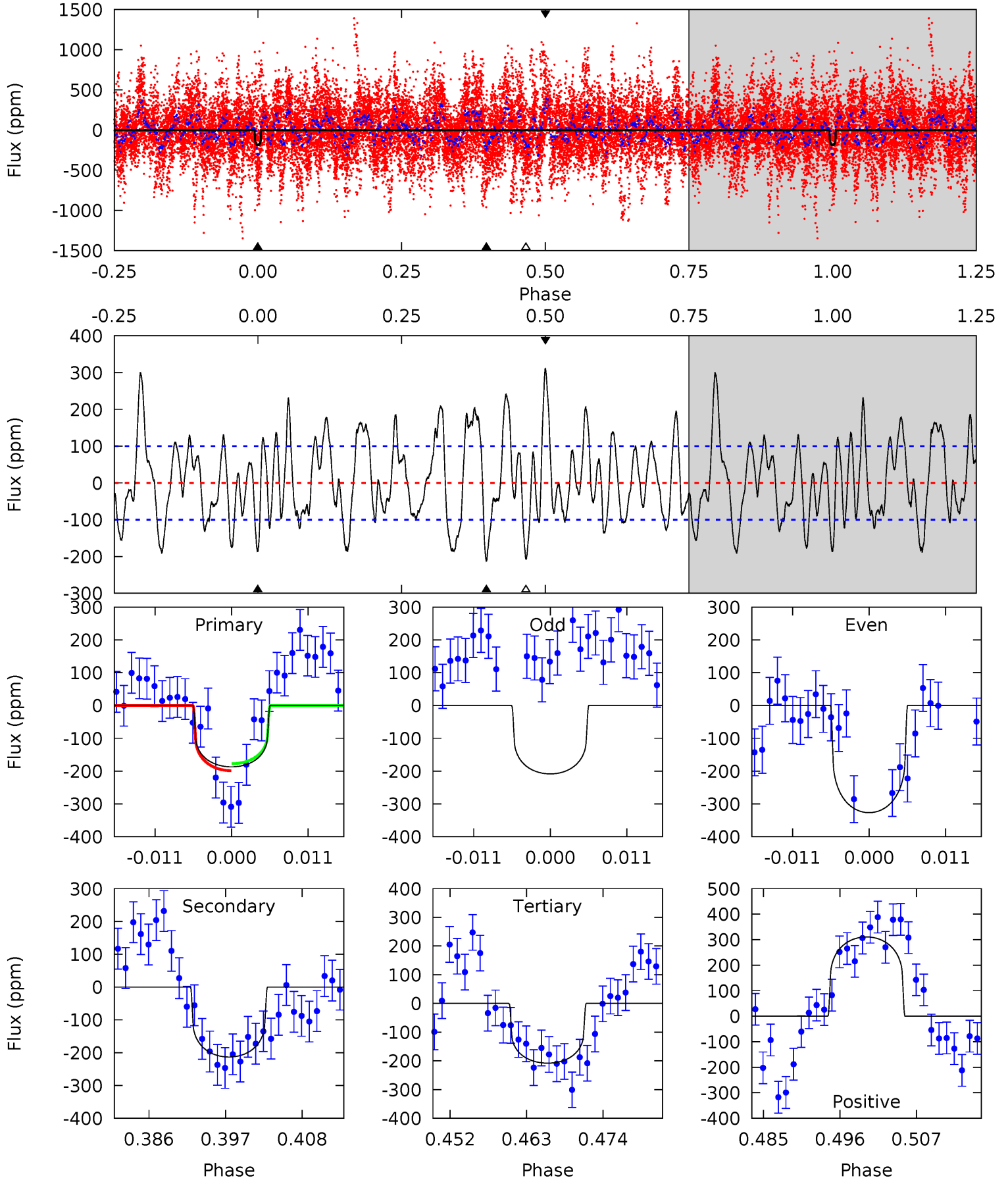
TCE 009120066-04 P= 68.177942 Days $T_0=134.244741$ (BKJD)



DV Model-Shift Uniqueness Test

009120066-04, P = 68.179339 Days, E = 66.075908 Days

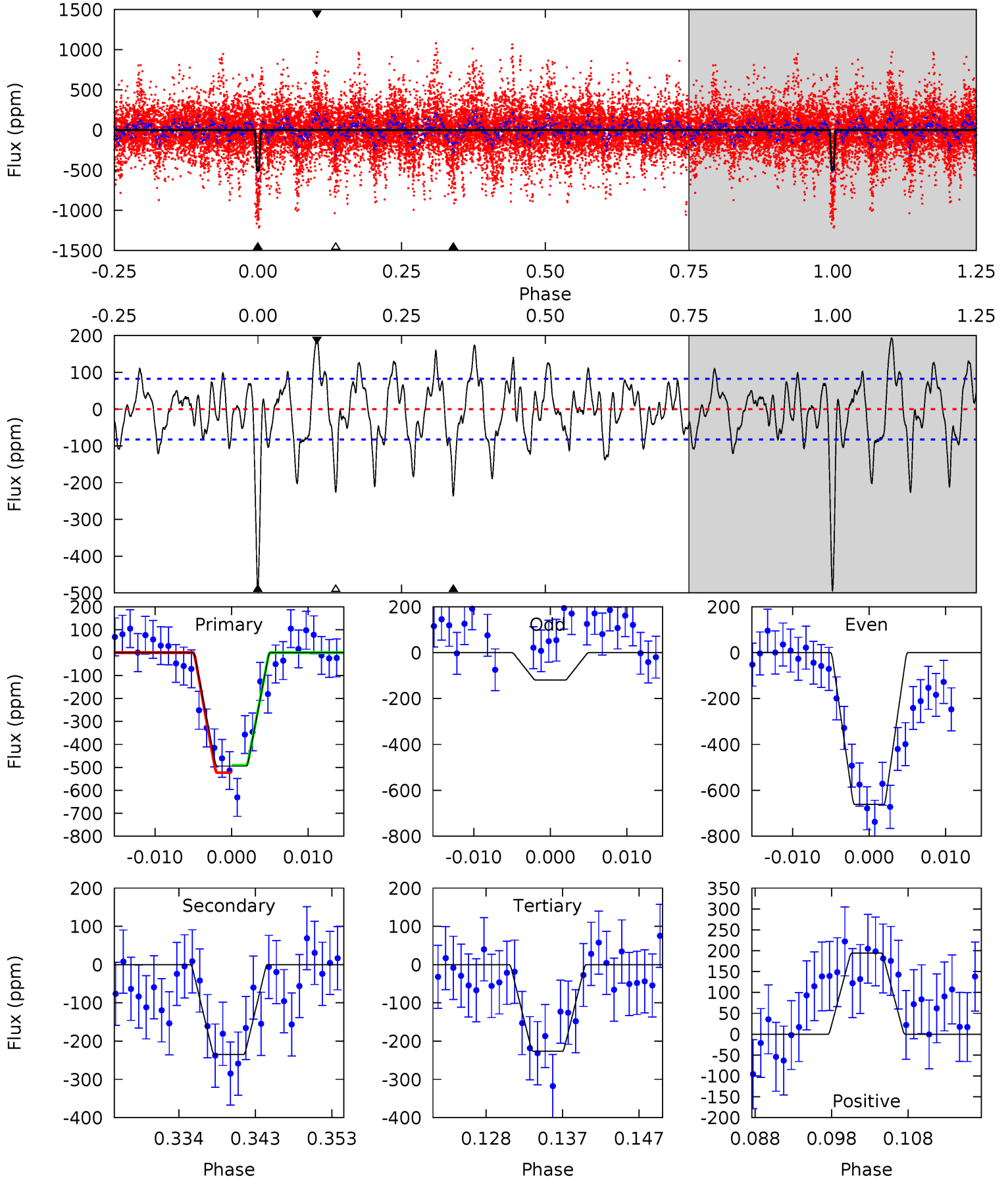
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.35	10.7	10.4	15.5	5.01	2.54	5.22	-1.04	-6.18	0.26	-4.87	2.61	0.57	0.59	0.54



Alt Model-Shift Uniqueness Test

009120066-04, P = 68.177942 Days, E = 66.066799 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.1	14.3	13.8	11.8	5.03	2.58	4.41	16.3	18.3	0.52	2.47	13.7	1.59	0.28	0.99



Stellar Parameters For KIC 009120066

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5750^{+190}_{-173}	$3.979^{+0.443}_{-0.148}$	$-0.100^{+0.300}_{-0.300}$	$1.727^{+0.402}_{-0.746}$	$1.037^{+0.140}_{-0.155}$	$0.284^{+1.102}_{-0.115}$
	+3%/-3%	+11%/-4%	+300%/-300%	+23%/-43%	+14%/-15%	+388%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009120066-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-213 ± 20	$1.93^{+1.34}_{-1.02}$	792^{+64}_{-91}	6593^{+3502}_{-1378}	3471^{+12293}_{-2285}
Alt.	-235 ± 16	$4.02^{+1.61}_{-1.41}$	800^{+66}_{-100}	4838^{+768}_{-493}	888^{+1158}_{-436}

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 $A_{obs} \gg 1.0$

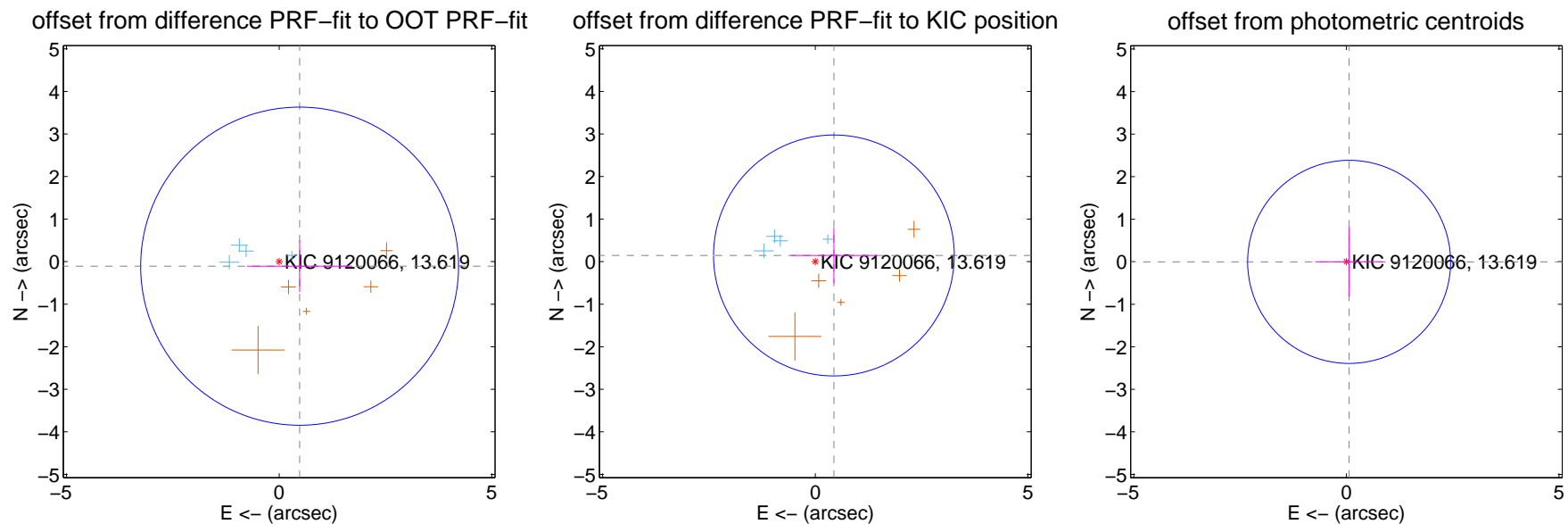
DV Centroid Data

Supplemental centroid analysis for 009120066-04. Kepler magnitude: 13.62. Transit SNR 3.75

There are 4 quarters with good PRF difference image offsets

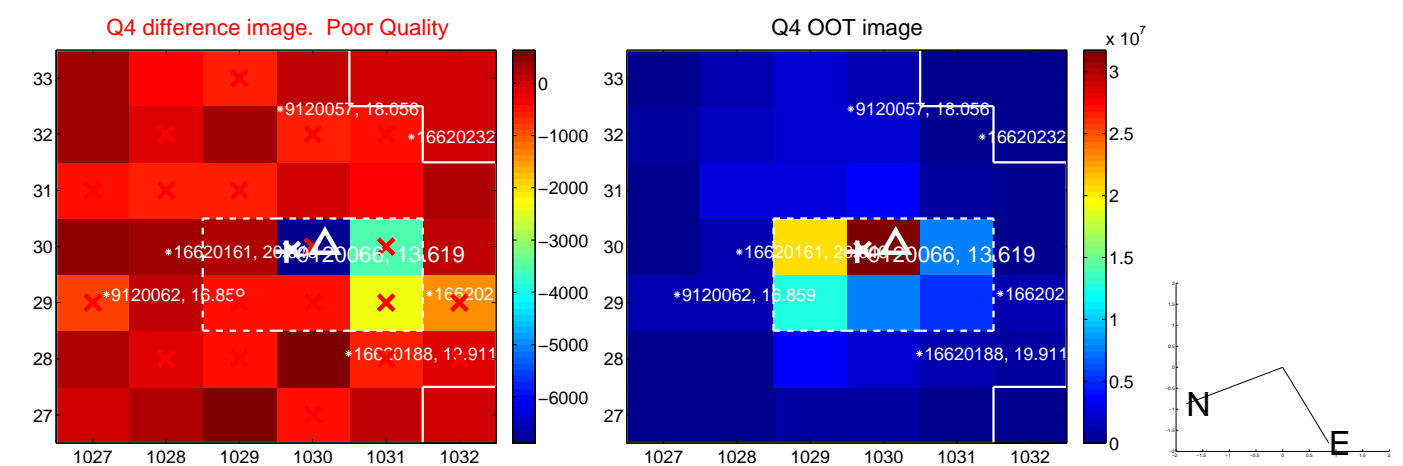
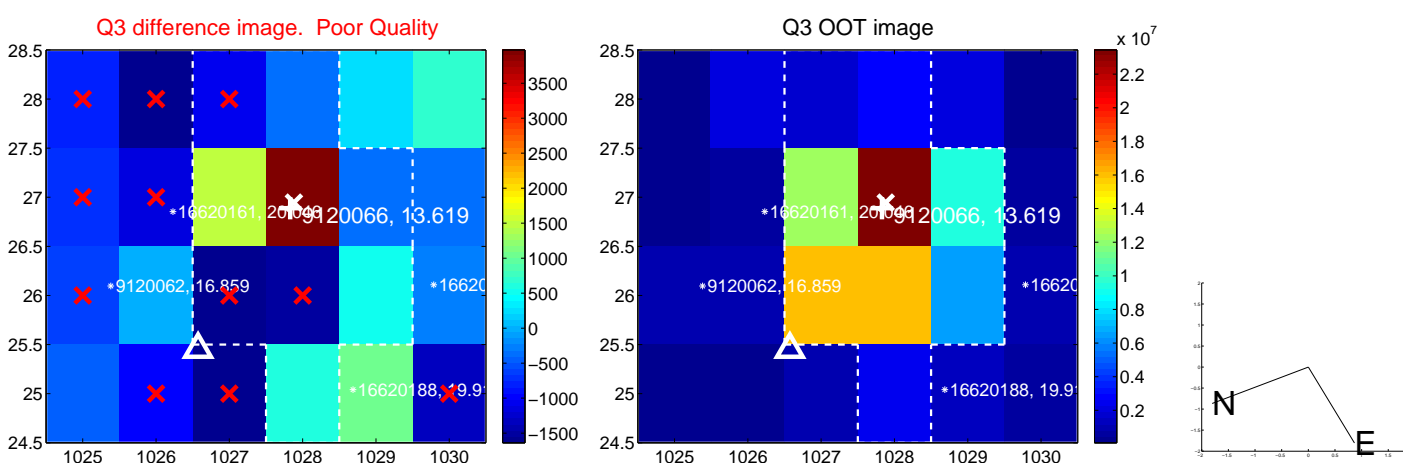
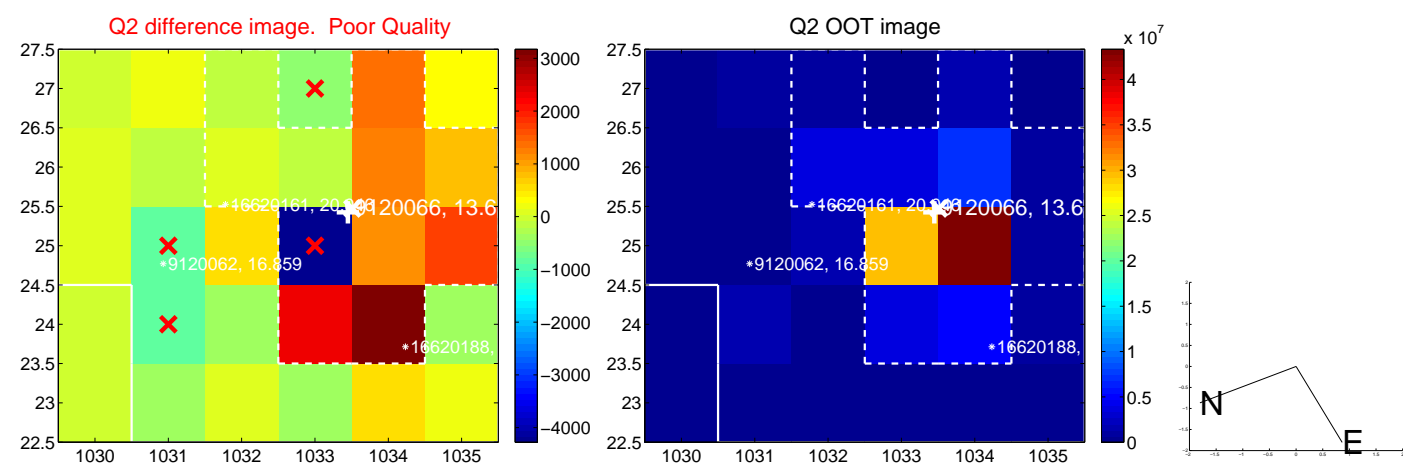
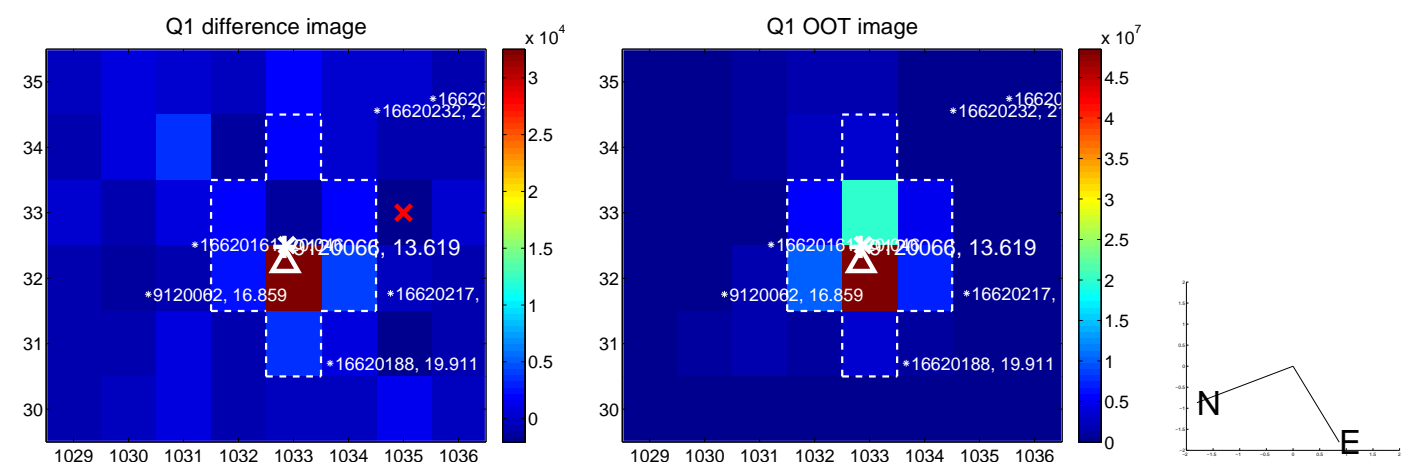
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.493 ± 1.246	0.40	-0.481 ± 1.239	-0.107 ± 0.606
PRF-fit source offset from KIC position	0.462 ± 0.944	0.49	-0.438 ± 1.008	0.145 ± 0.650
photometric centroid source offset	0.06 ± 0.80	0.08	-0.06 ± 0.80	-0.00 ± 0.82

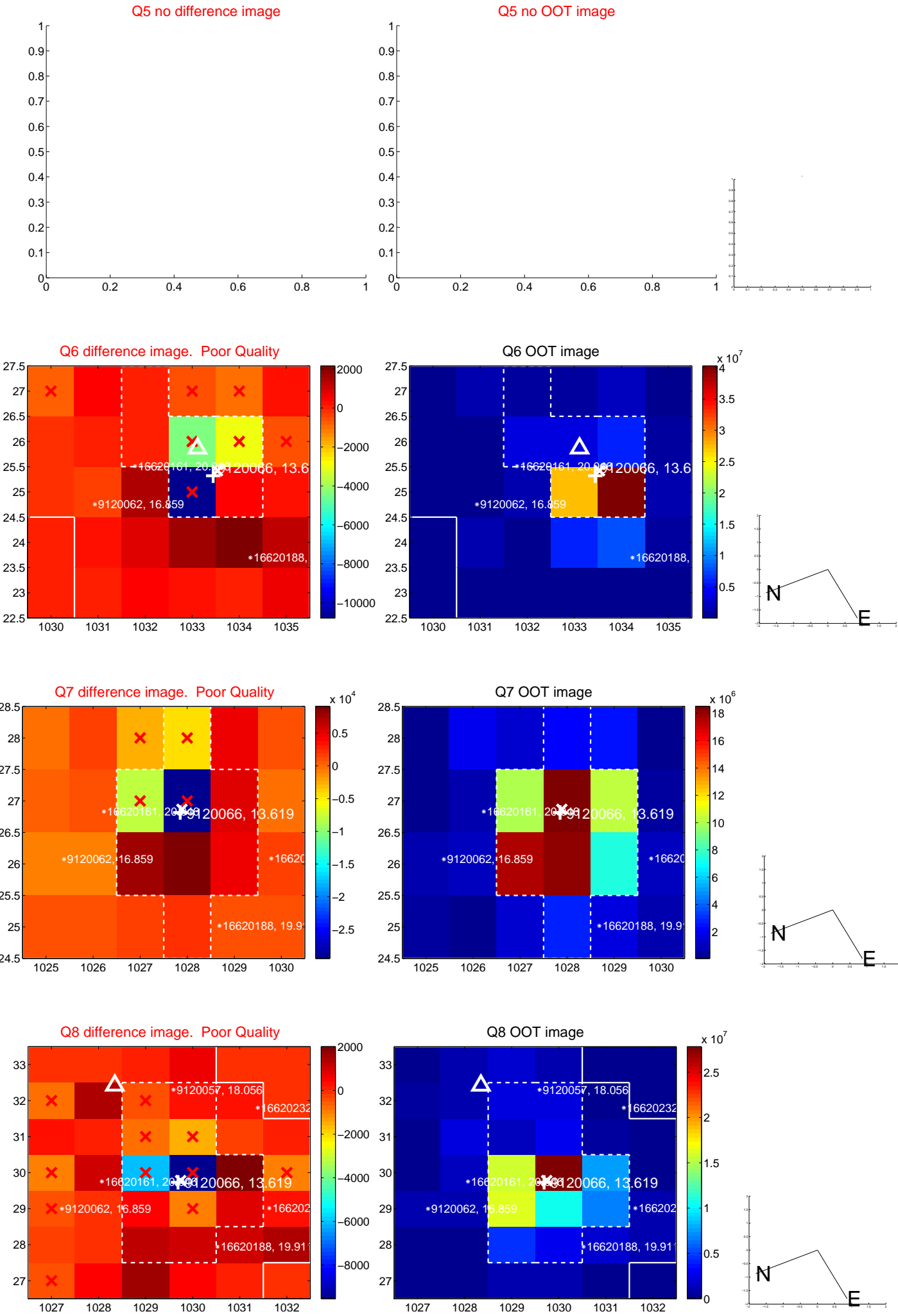


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

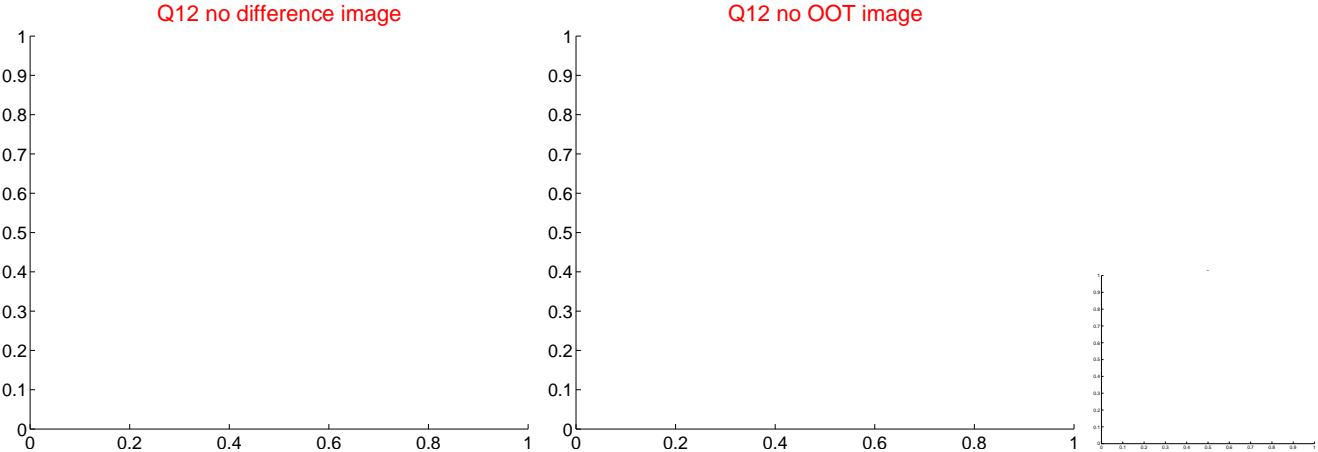
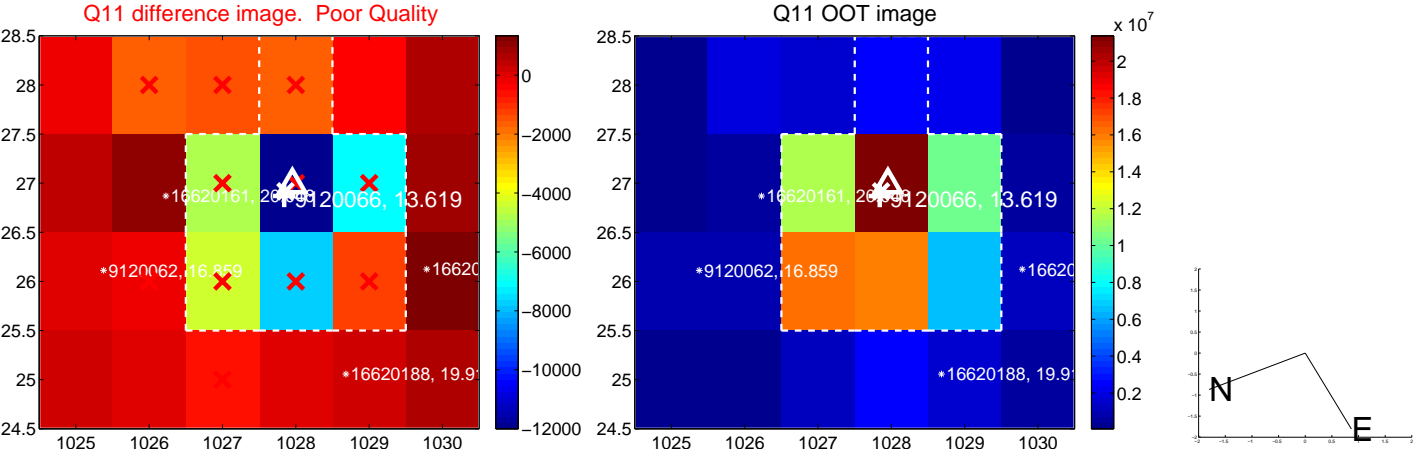
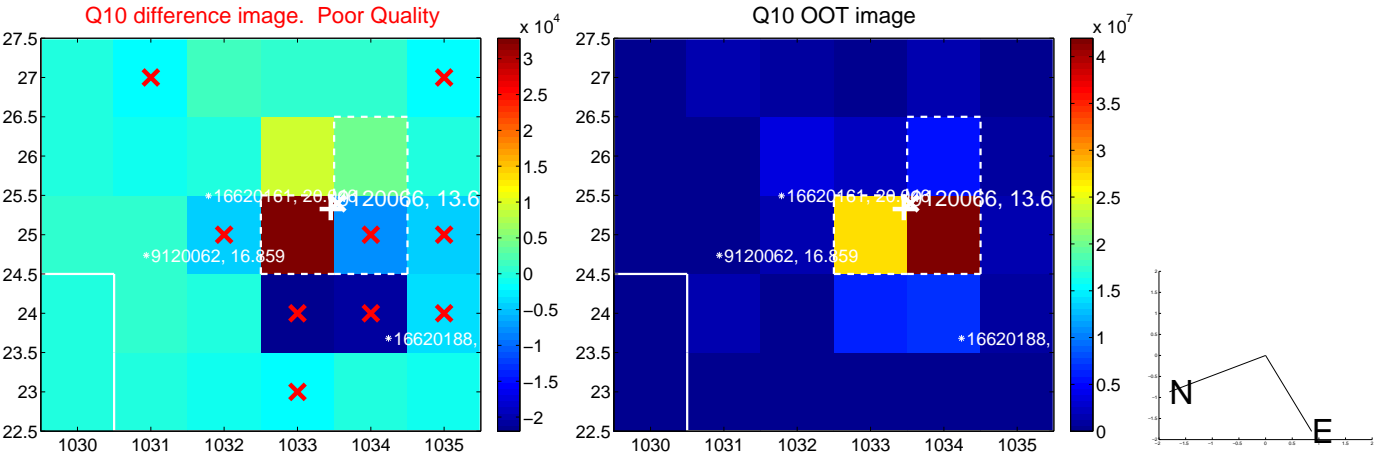
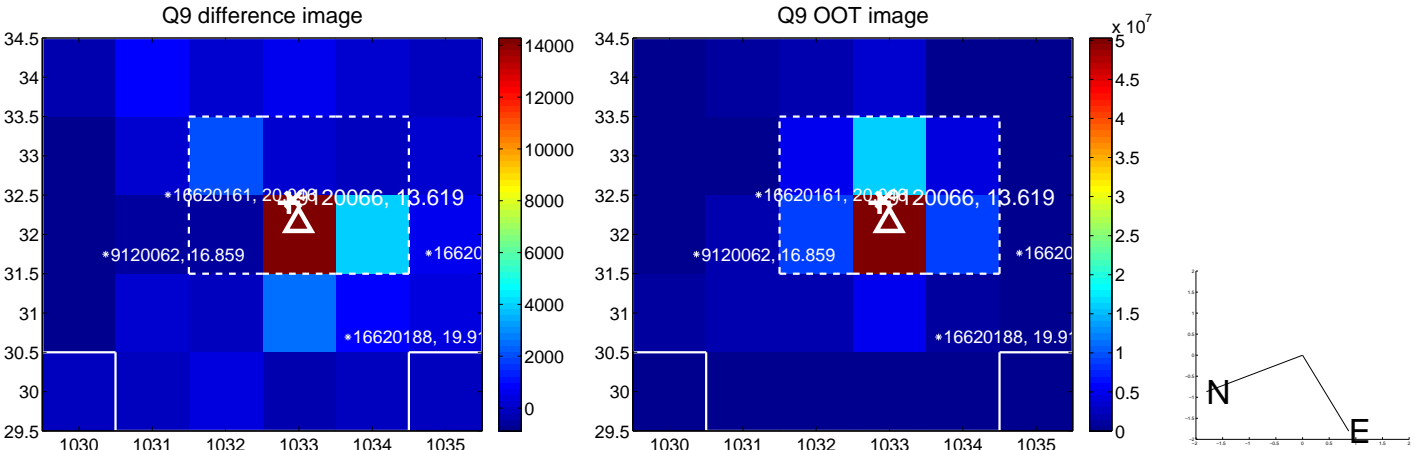
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



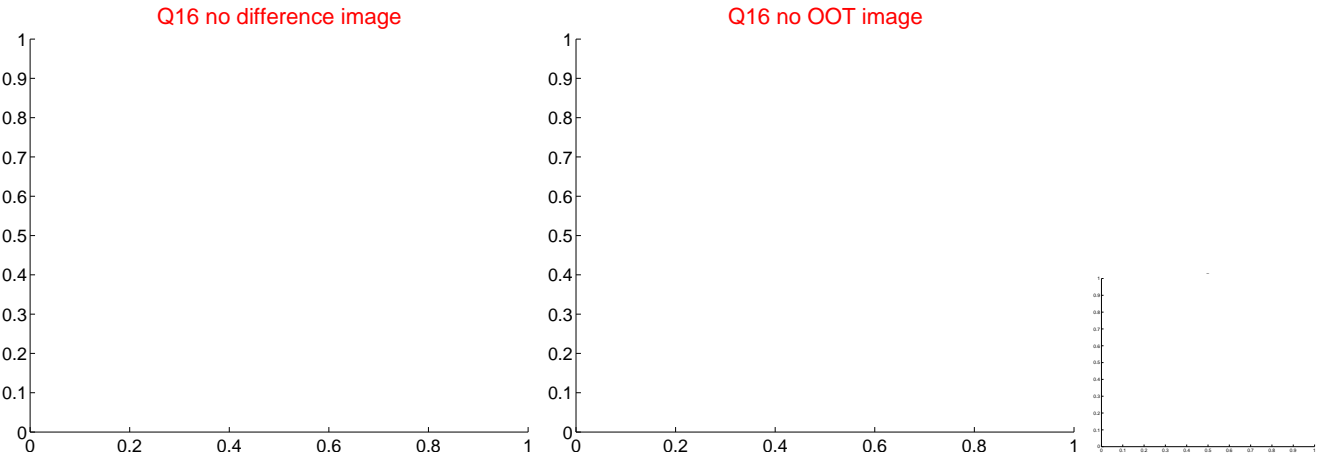
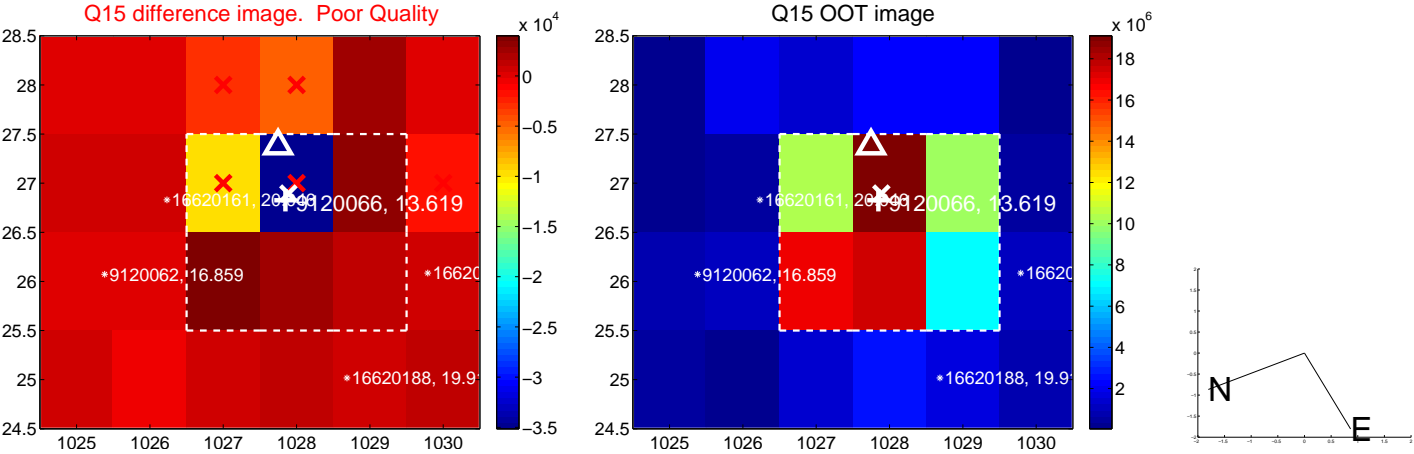
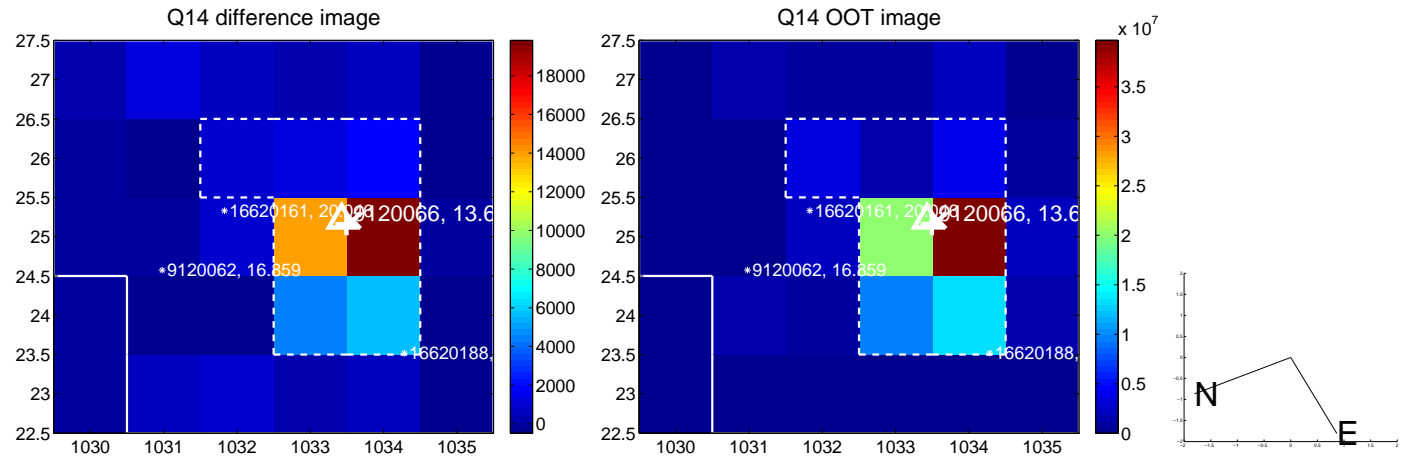
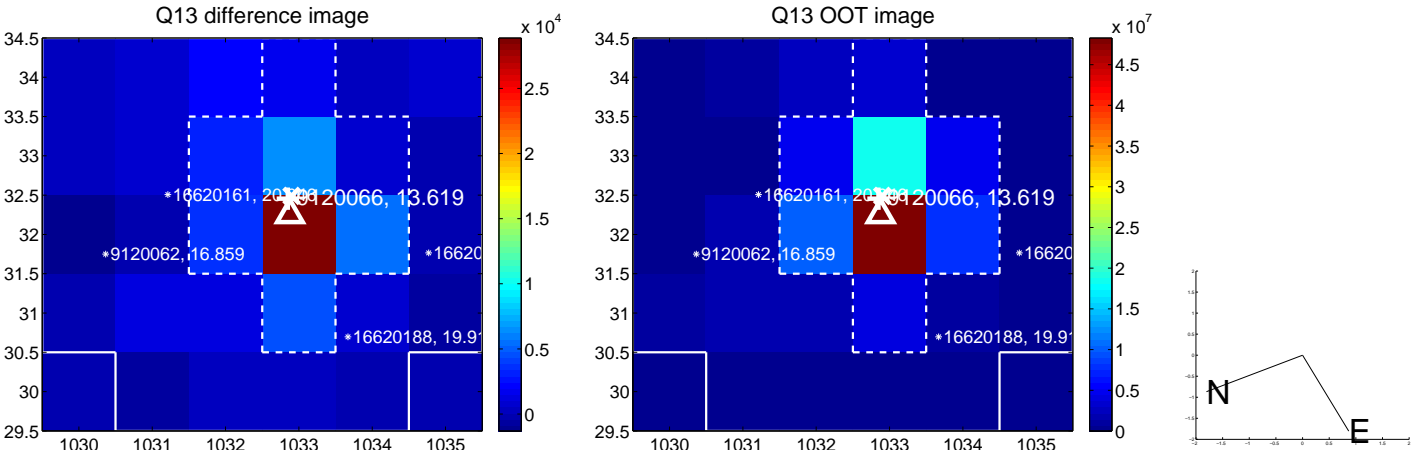
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



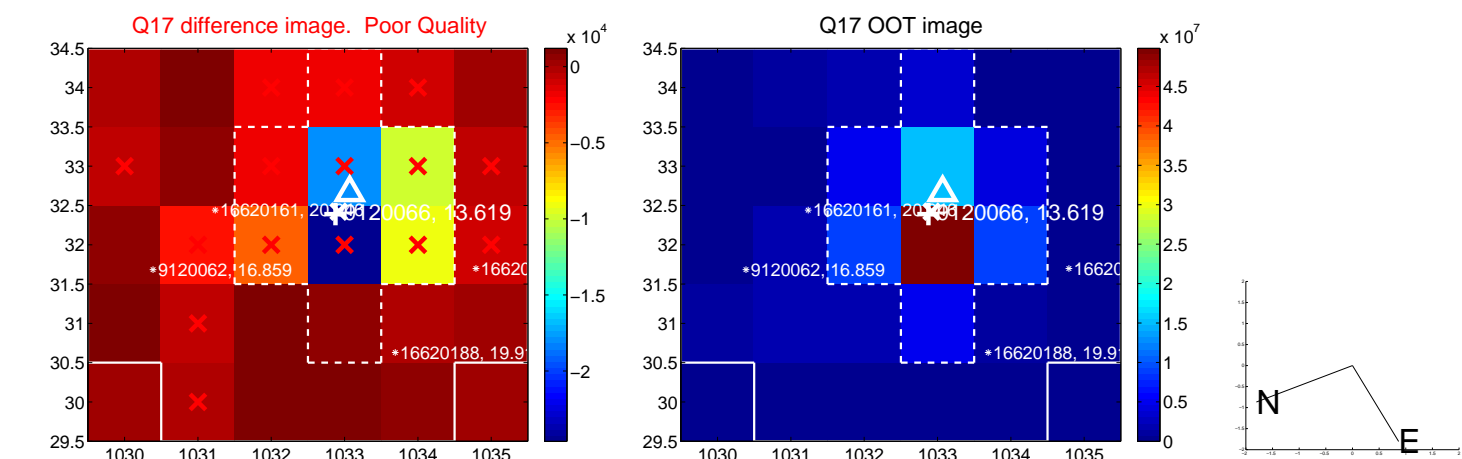
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



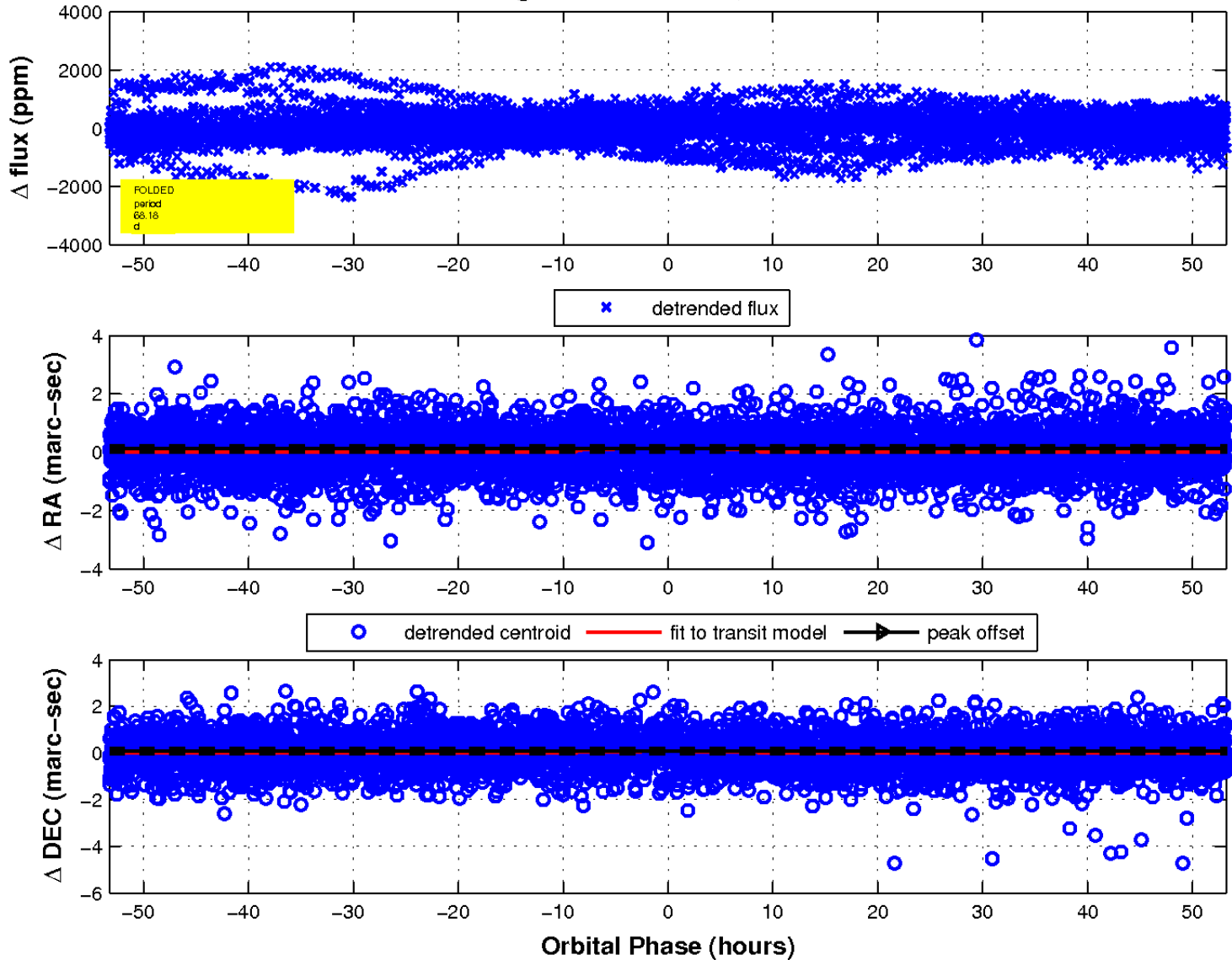
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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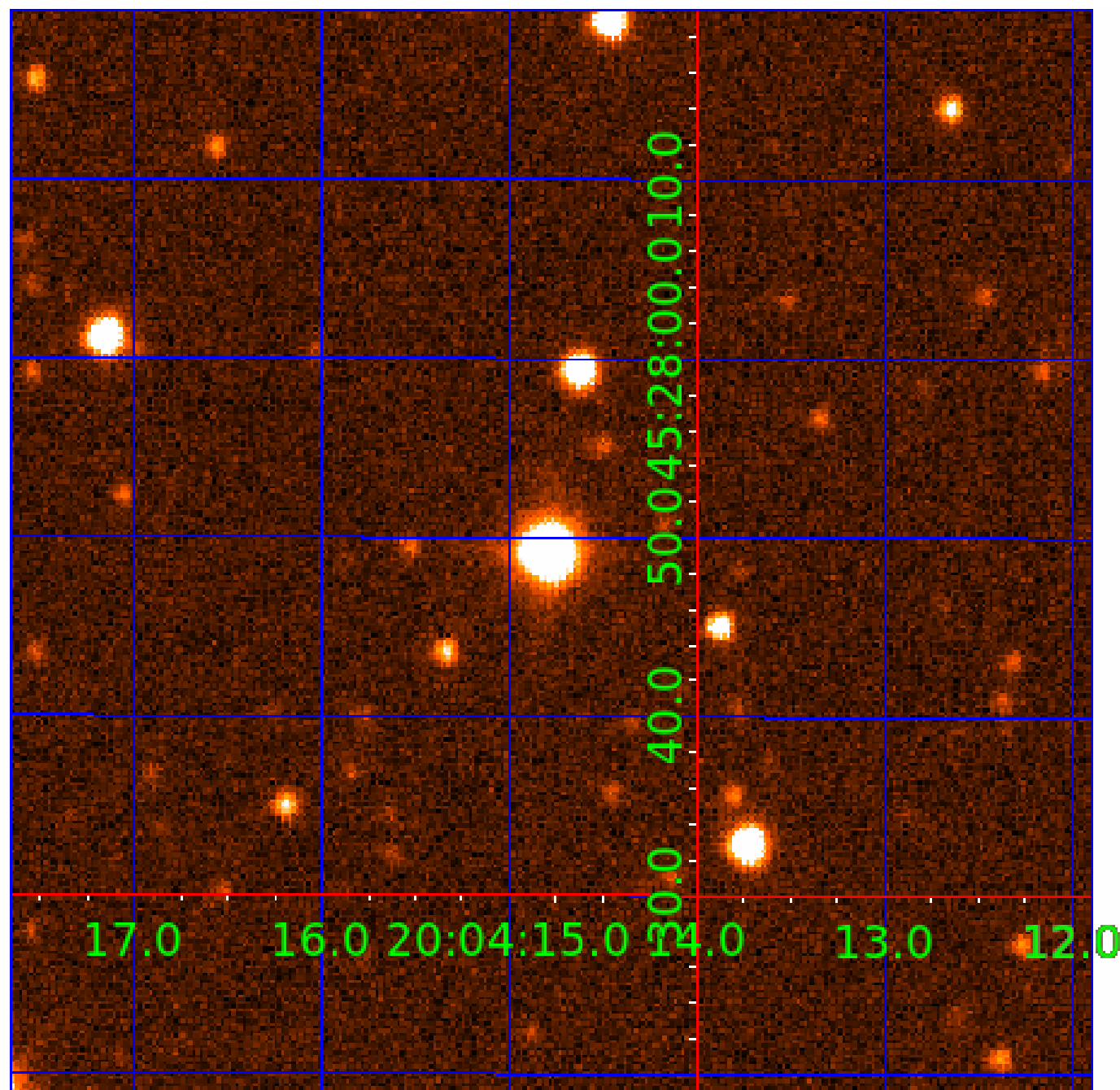


fluxWeightedCentroids, Planet 4 of 7



UKIRT Image

Declination



KIC 009120066

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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Robovetter Results

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009120066-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
009120066-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009120066-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009120066-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
009120066-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009120066-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

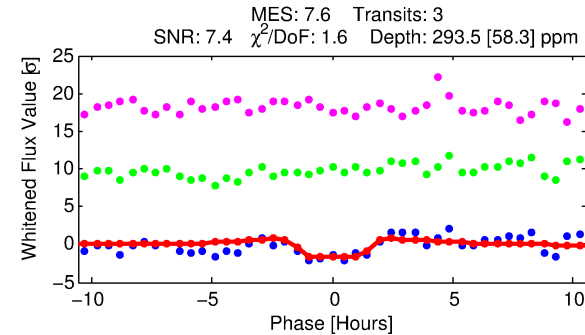
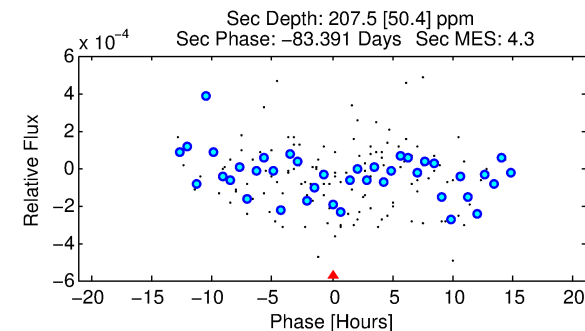
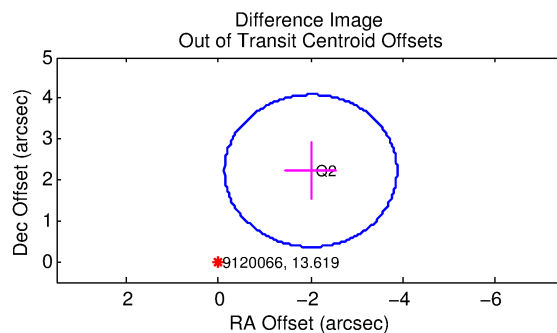
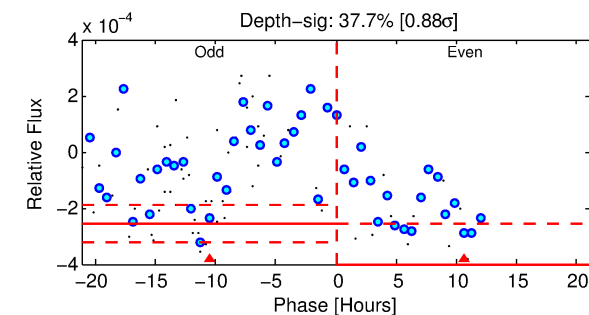
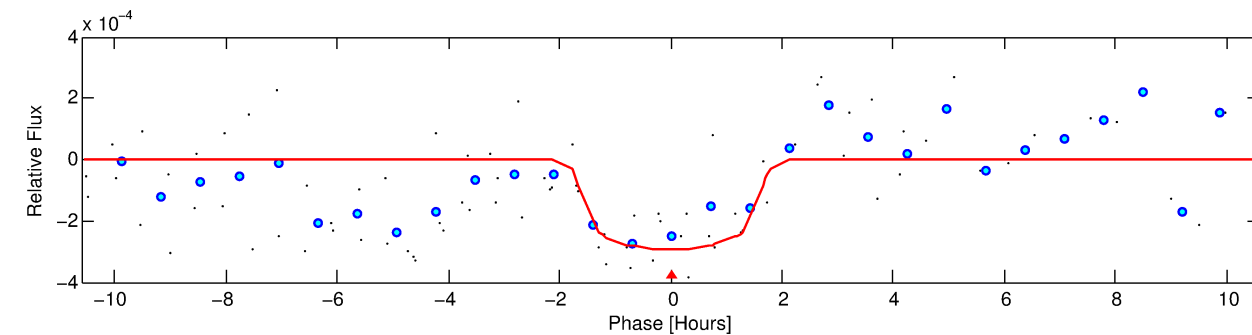
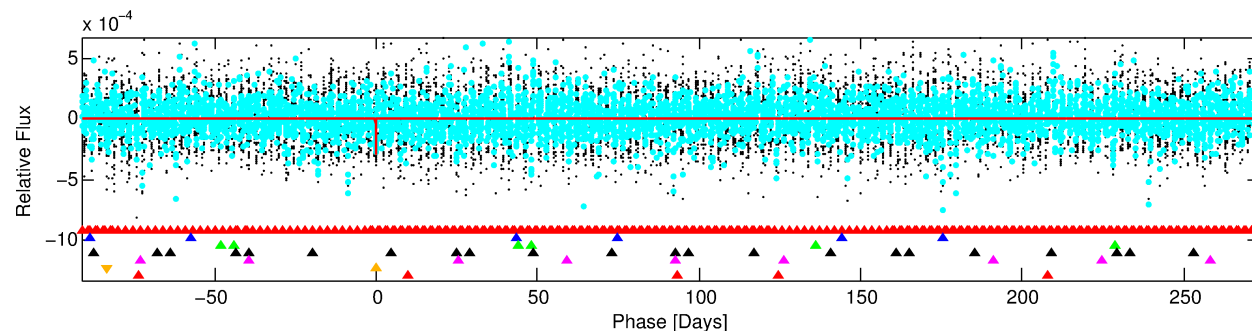
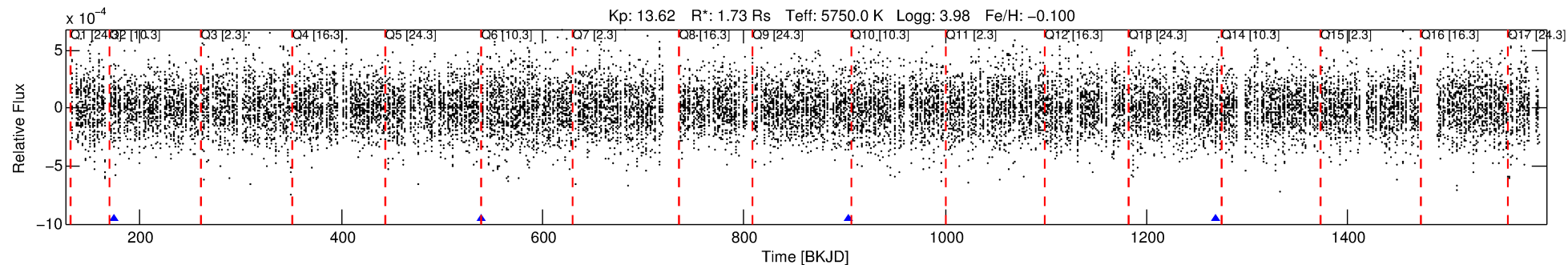
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009120066-06

No Significant Match Found

DV One-Page Summary

KIC: 9120066 Candidate: 6 of 7 Period: 364.962 d



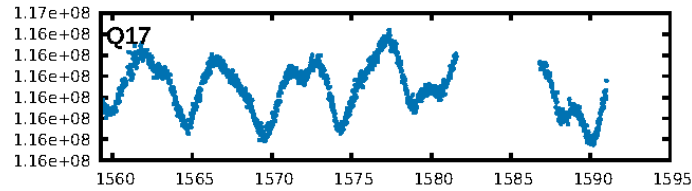
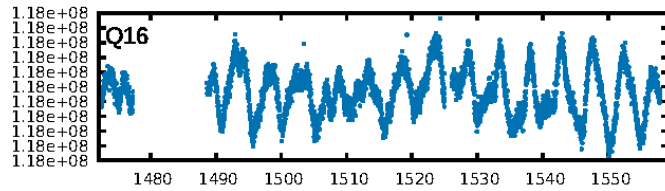
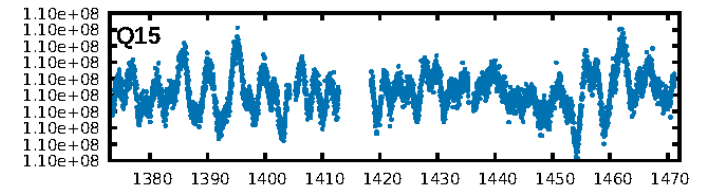
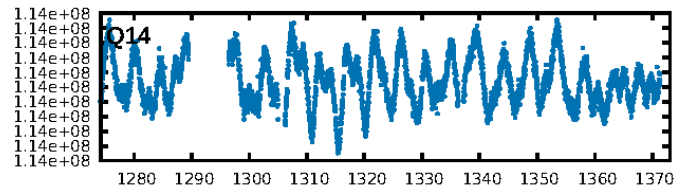
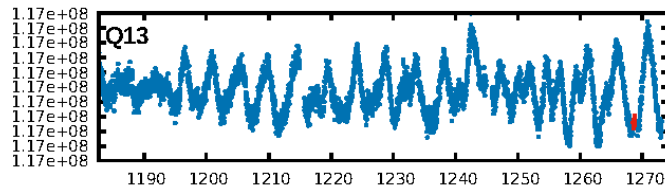
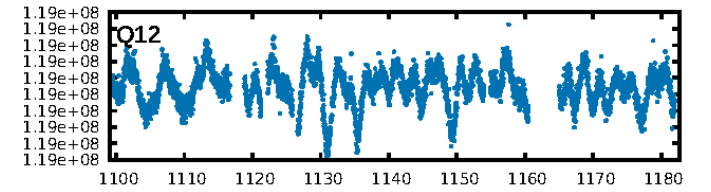
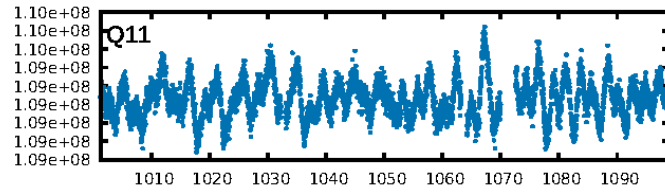
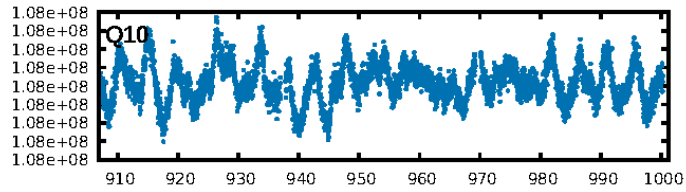
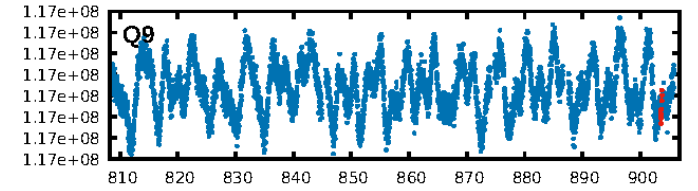
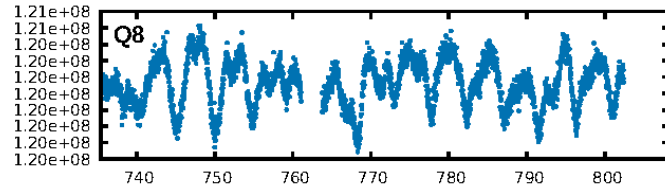
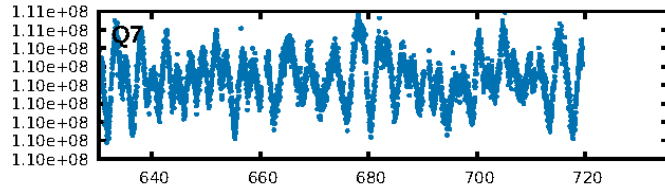
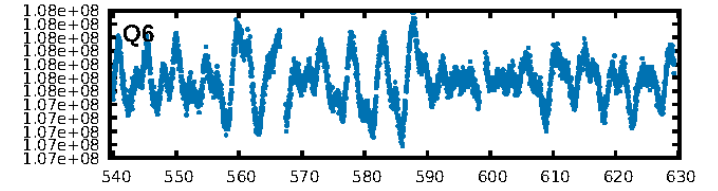
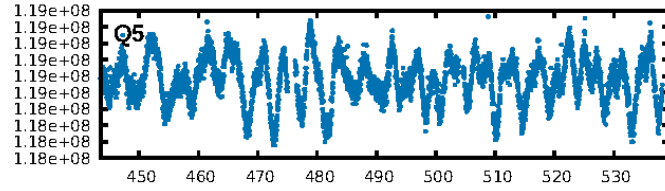
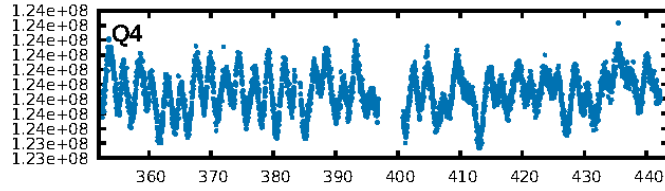
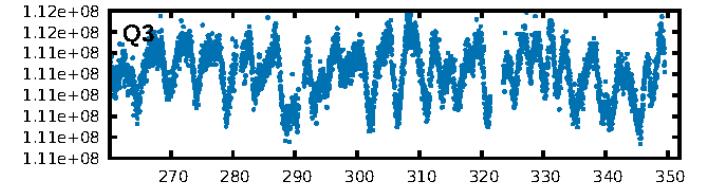
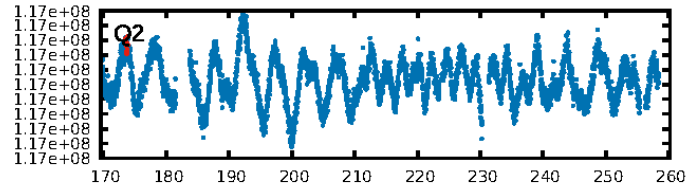
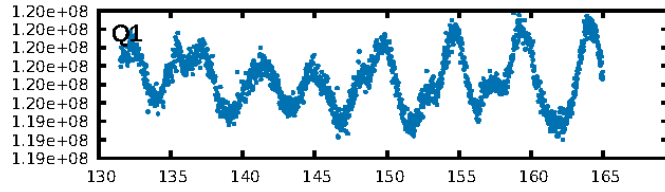
DV Fit Results:

Period = 364.96249 [0.00530] d
Epoch = 173.7214 [0.0097] BKJD
Rp/R* = 0.0187 [0.0143]
a/R* = 376.63 [1350.07]
b = 0.90 [0.77]
Seff = 2.85 [2.14]
Teq = 331 [62] K
Rp = 3.52 [3.09] Re
a = 1.0117 [0.4508] AU
Ag = 9447.89 [16191.95] [0.58 σ]
Teffp = 5052 [1960] K [2.41 σ]

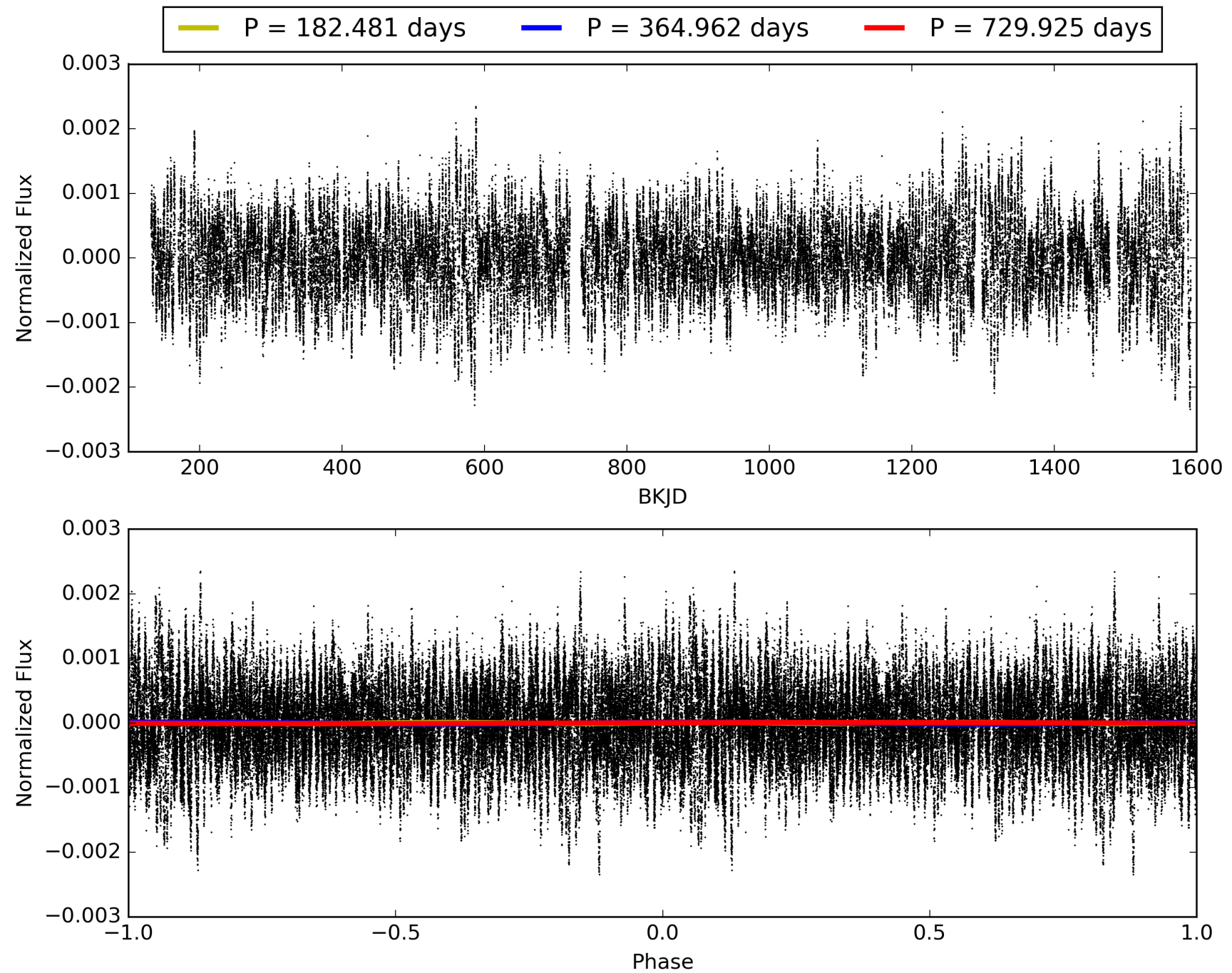
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [127.65 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 3.0%
ModelChiSquareGof-sig: 79.0%
Bootstrap-pfa: 6.06e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.14
Centroid-sig: 36.7%
Centroid-so: 2.121 arcsec [1.09 σ]
OotOffset-rm: 2.992 arcsec [4.81 σ]
KicOffset-rm: 3.128 arcsec [4.95 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 009120066-06, PDC Light Curves

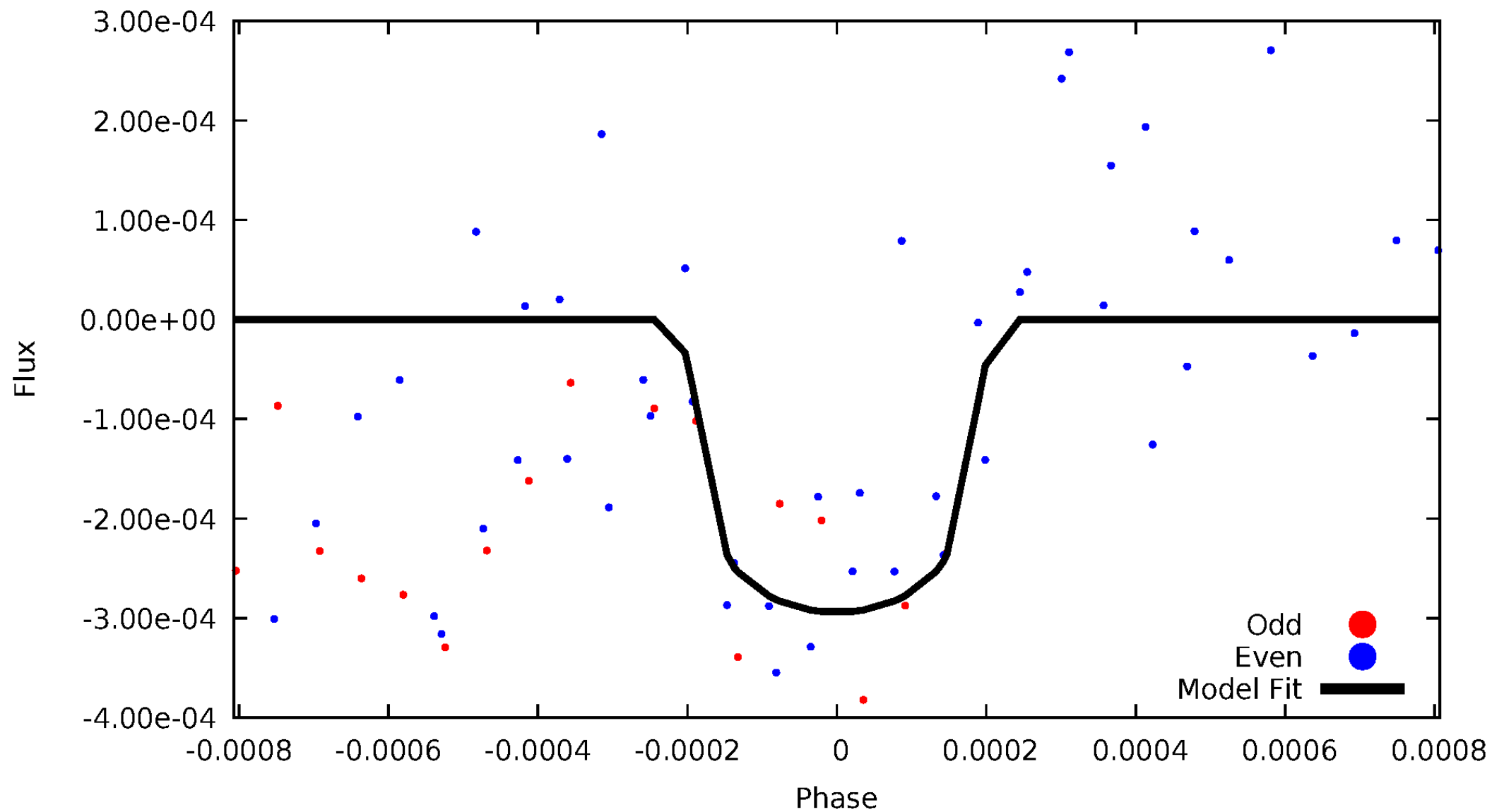


TCE 009120066-06



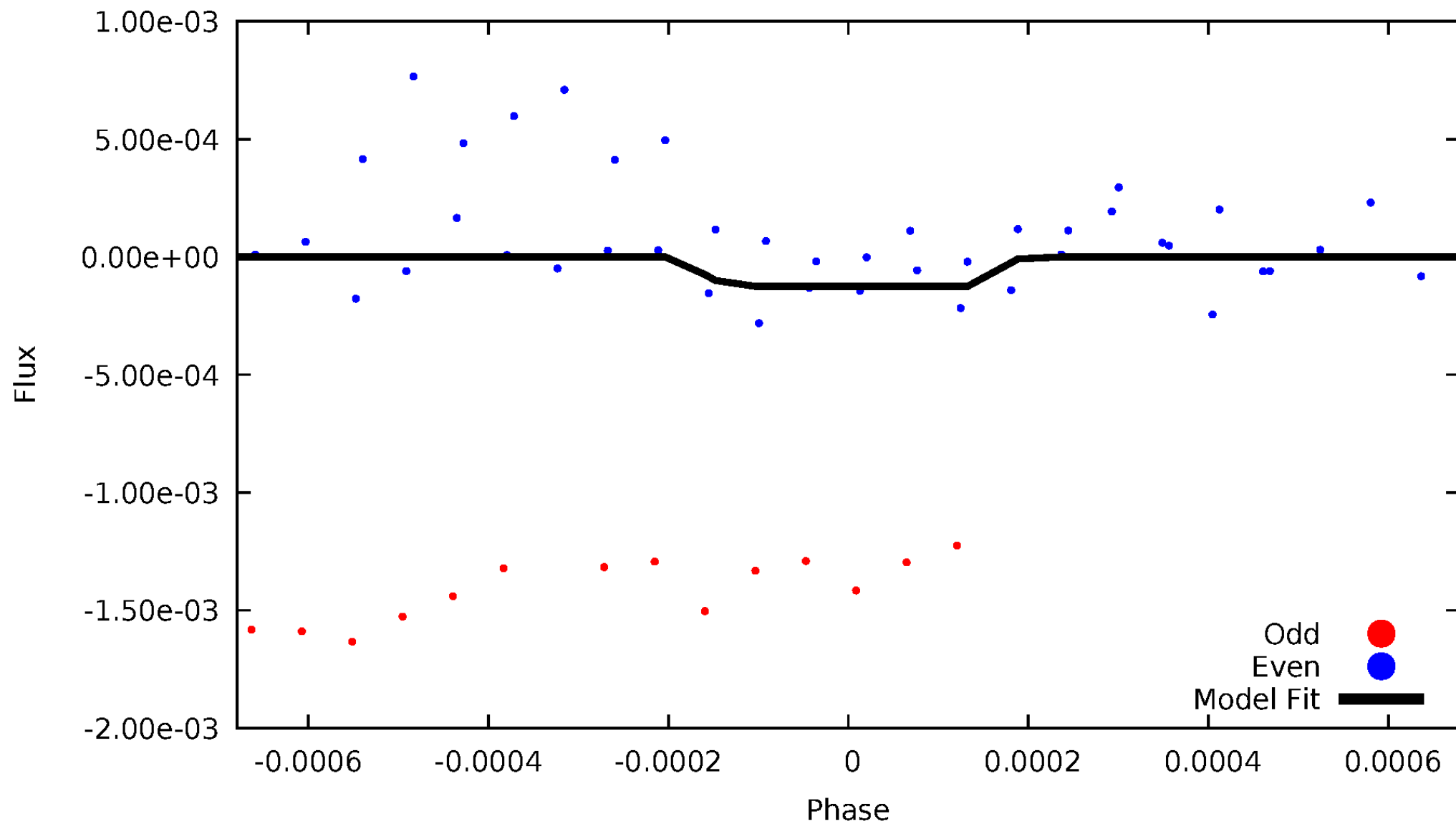
DV Odd/Even

TCE 009120066-06



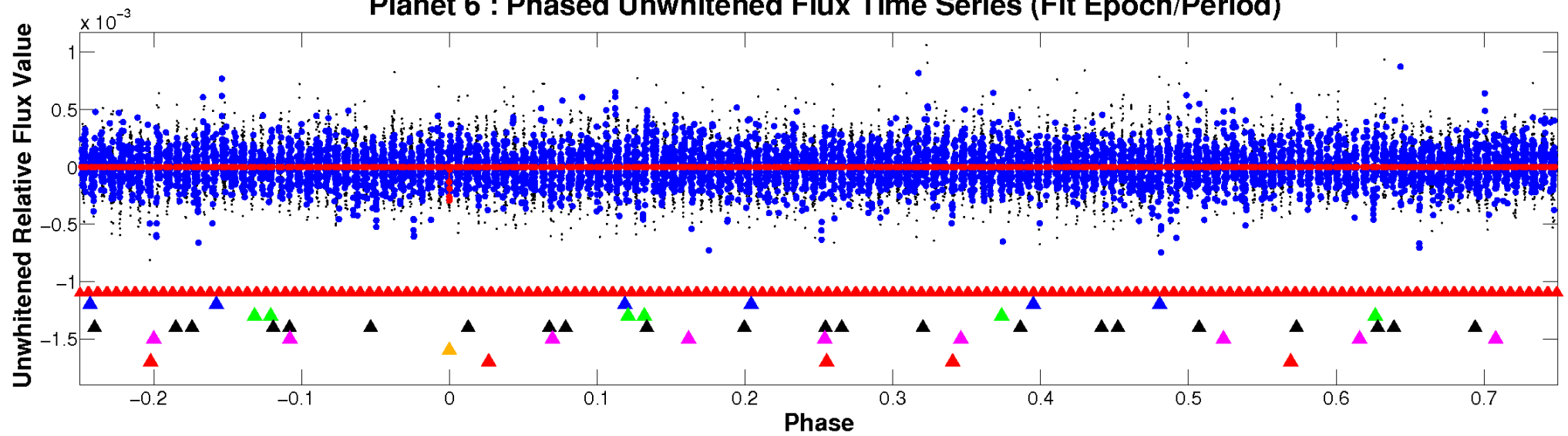
ALT Odd/Even

TCE 009120066-06

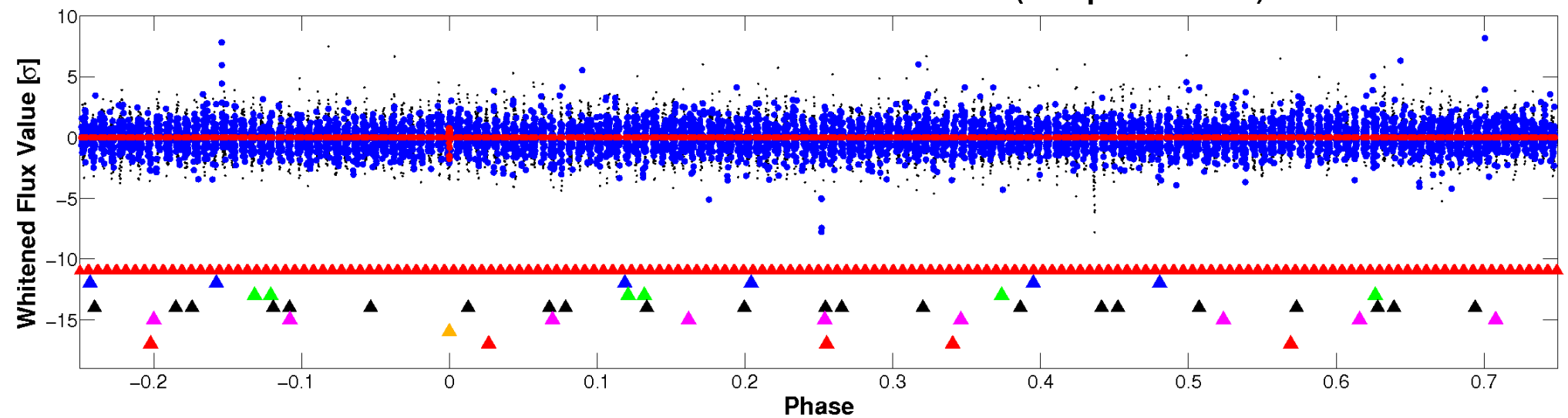


Non-Whitened Vs. Whitened Light Curve

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

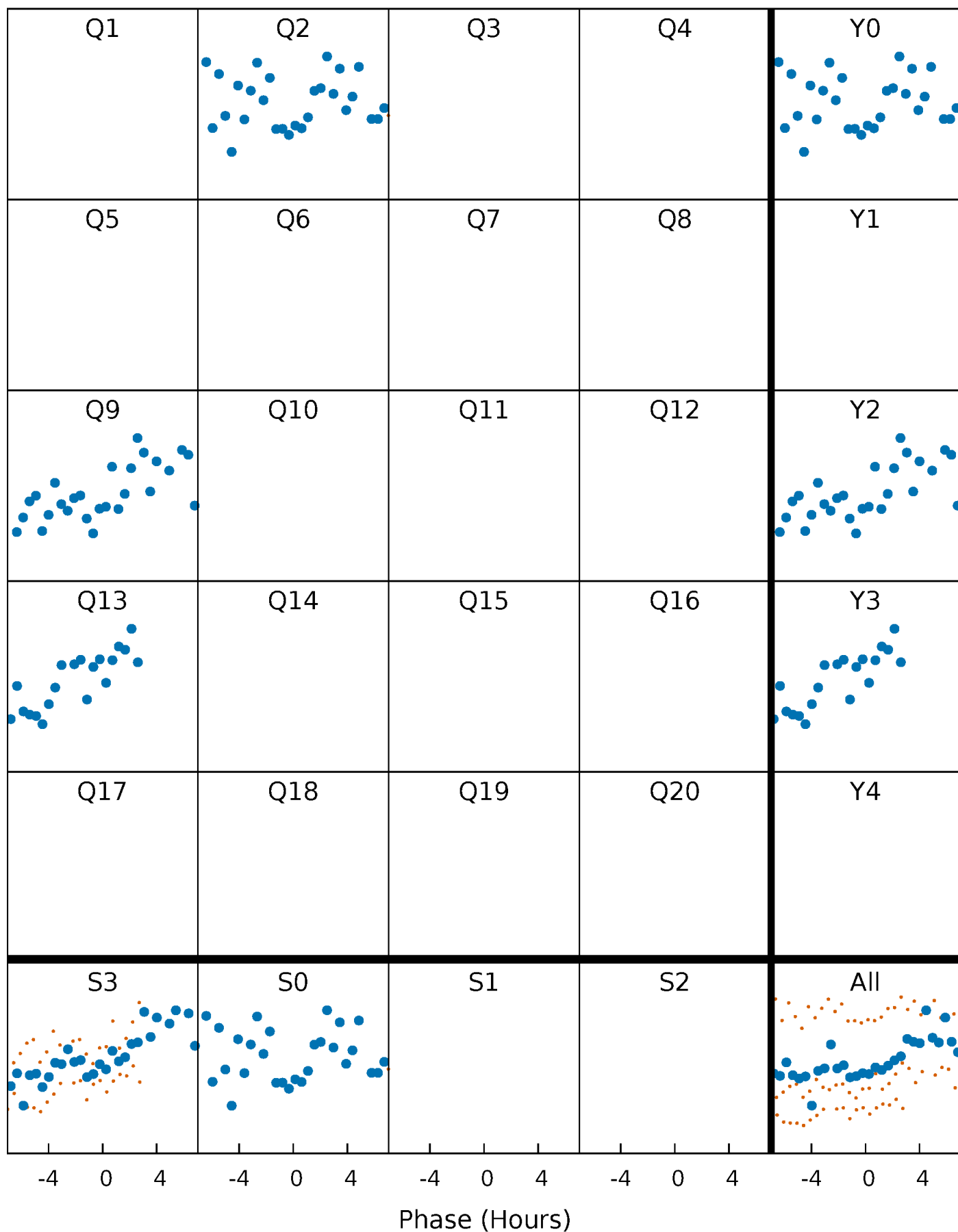


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



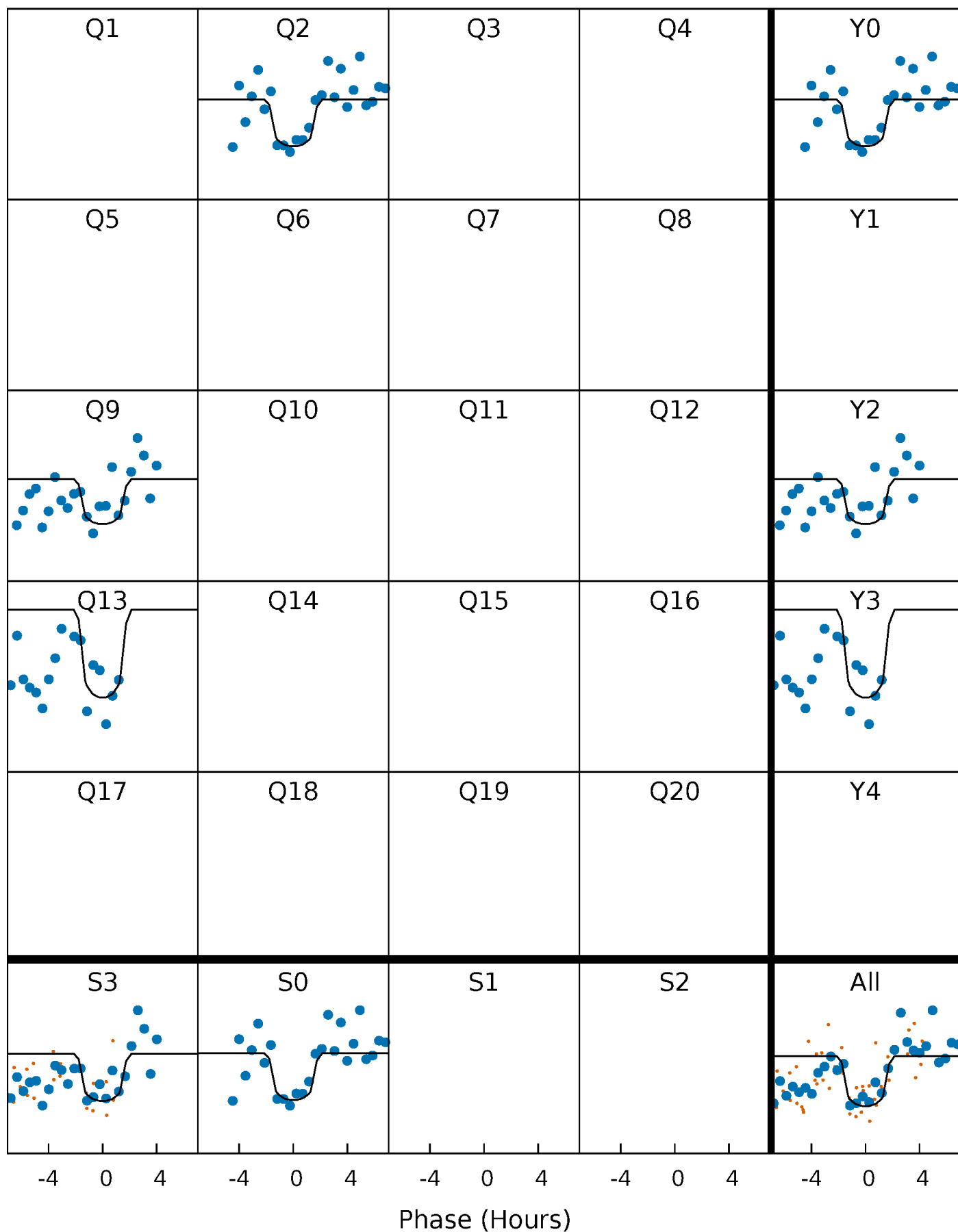
PDC Quarter-Phased Transit Curves

TCE 009120066-06 P=364.962490 Days $T_0=173.721434$ (BKJD)



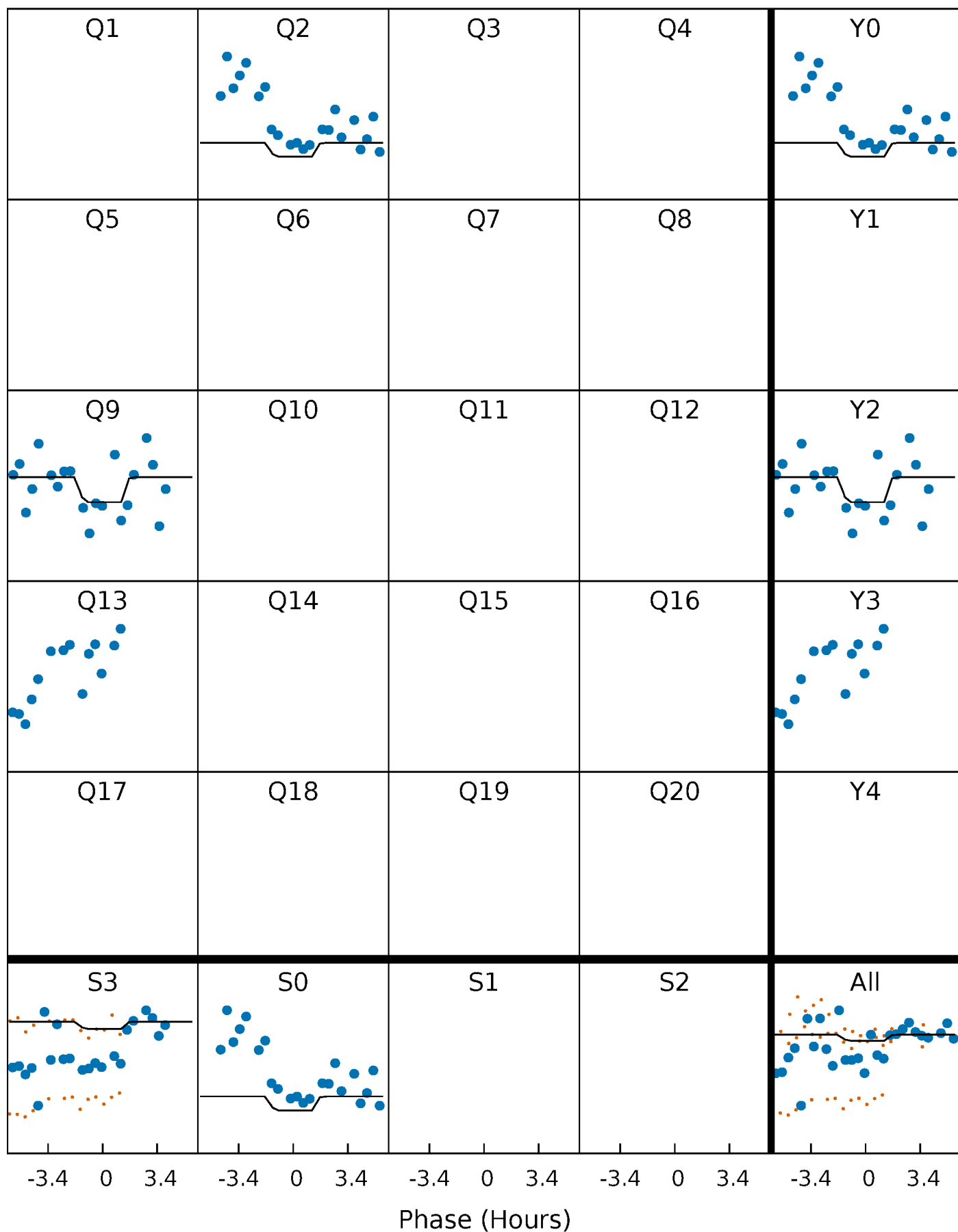
DV Quarter-Phased Transit Curves

TCE 009120066-06 P=364.962490 Days $T_0=173.721434$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

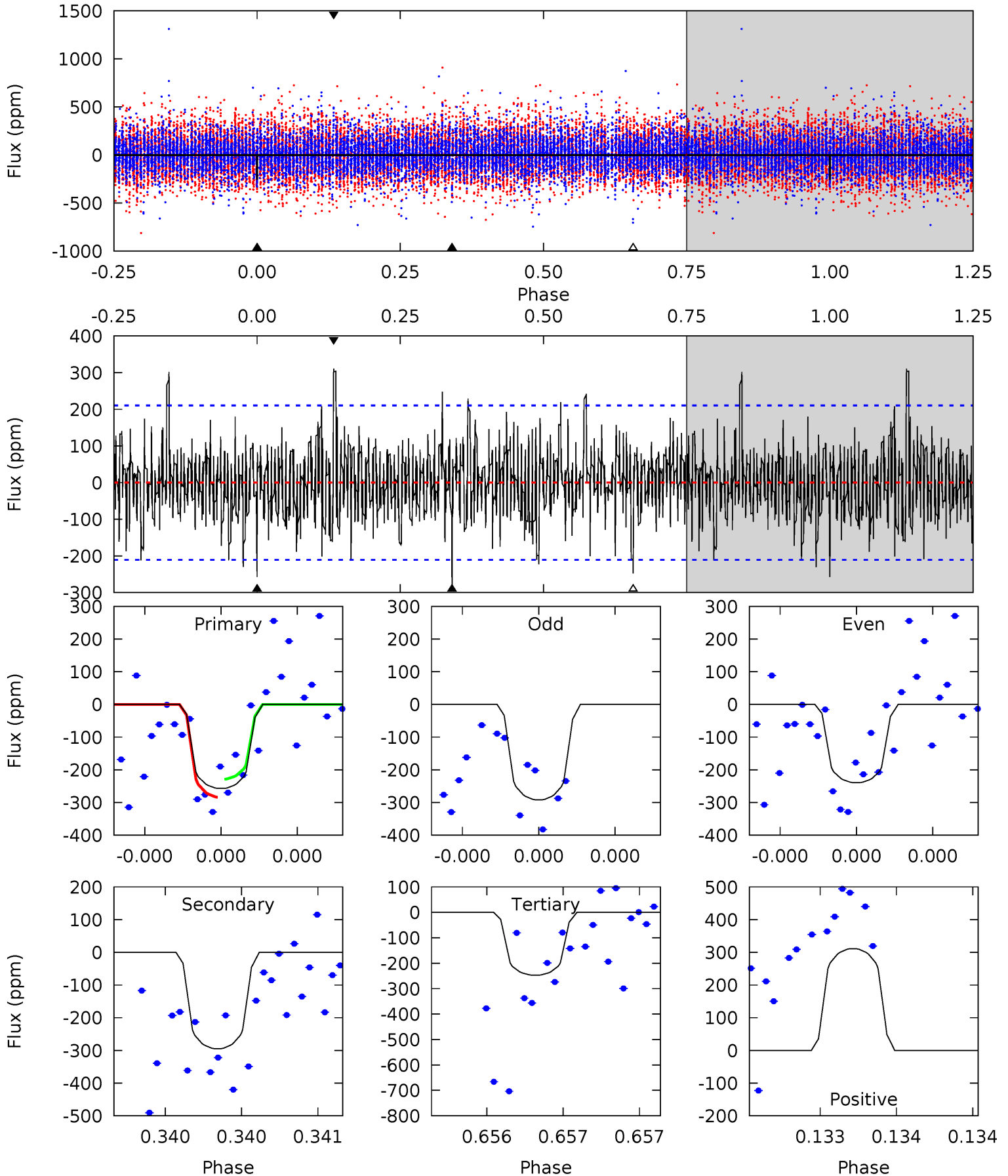
TCE 009120066-06 P=364.965687 Days $T_0=173.721668$ (BKJD)



DV Model-Shift Uniqueness Test

009120066-06, P = 364.962490 Days, E = 173.721434 Days

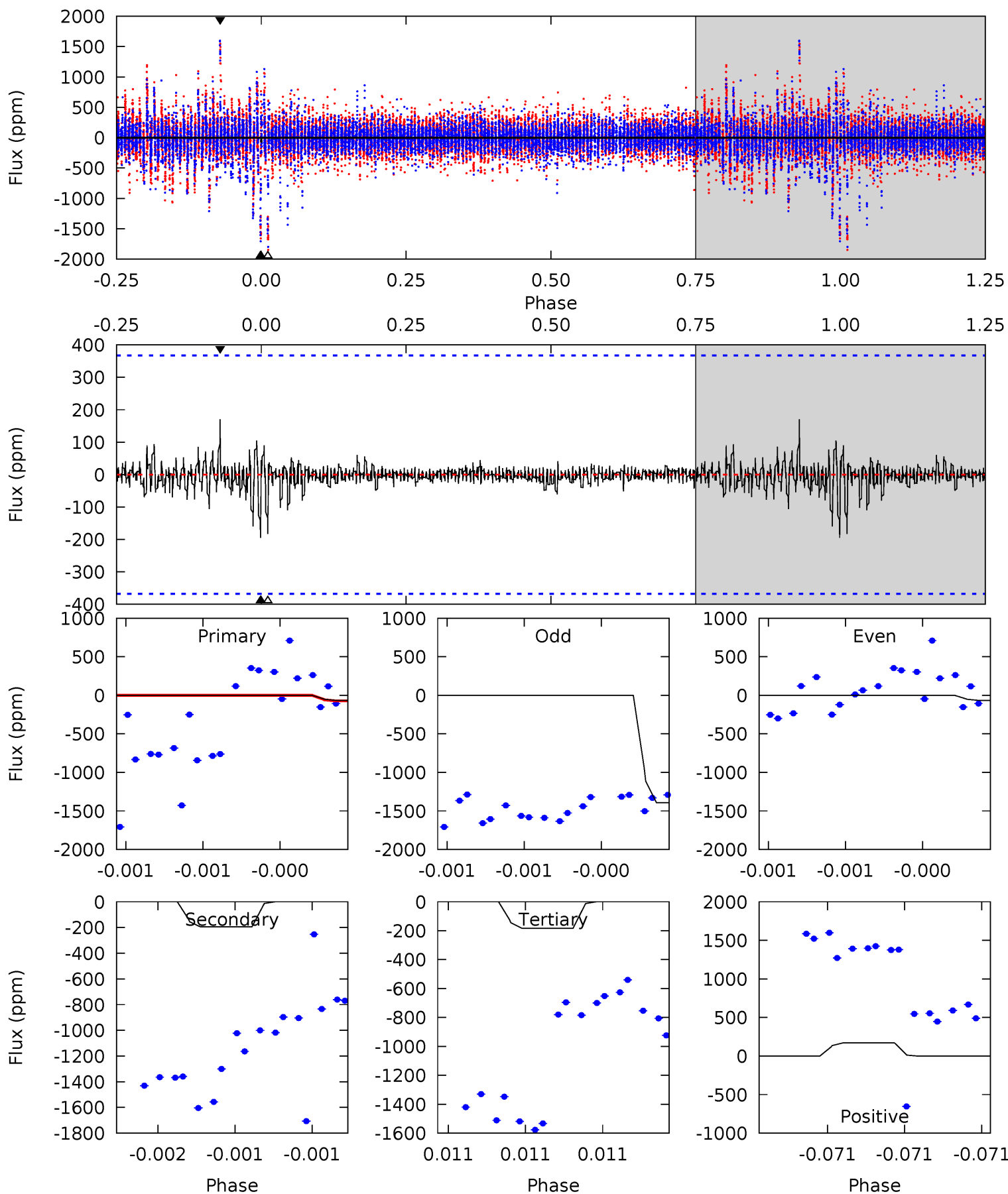
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.82	7.83	6.56	8.26	5.59	3.51	1.71	0.26	-1.44	1.26	-0.43	0.65	0.92	0.51	0.73



Alt Model-Shift Uniqueness Test

009120066-06, P = 364.965687 Days, E = 173.721668 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.99	2.99	2.79	2.61	5.64	3.58	0.29	-1.80	-1.62	0.19	0.38	9.77	3.52	0.47	0.12



Stellar Parameters For KIC 009120066

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5750^{+190}_{-173}	$3.979^{+0.443}_{-0.148}$	$-0.100^{+0.300}_{-0.300}$	$1.727^{+0.402}_{-0.746}$	$1.037^{+0.140}_{-0.155}$	$0.284^{+1.102}_{-0.115}$
	+3%/-3%	+11%/-4%	+300%/-300%	+23%/-43%	+14%/-15%	+388%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009120066-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-295 ± 38	$3.51^{+2.57}_{-2.02}$	456^{+38}_{-52}	5301^{+3045}_{-987}	13236^{+62785}_{-8672}
Alt.	-195 ± 65	$2.61^{+2.31}_{-1.69}$	457^{+37}_{-52}	5509^{+4437}_{-1276}	$15612^{+106325}_{-11600}$

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

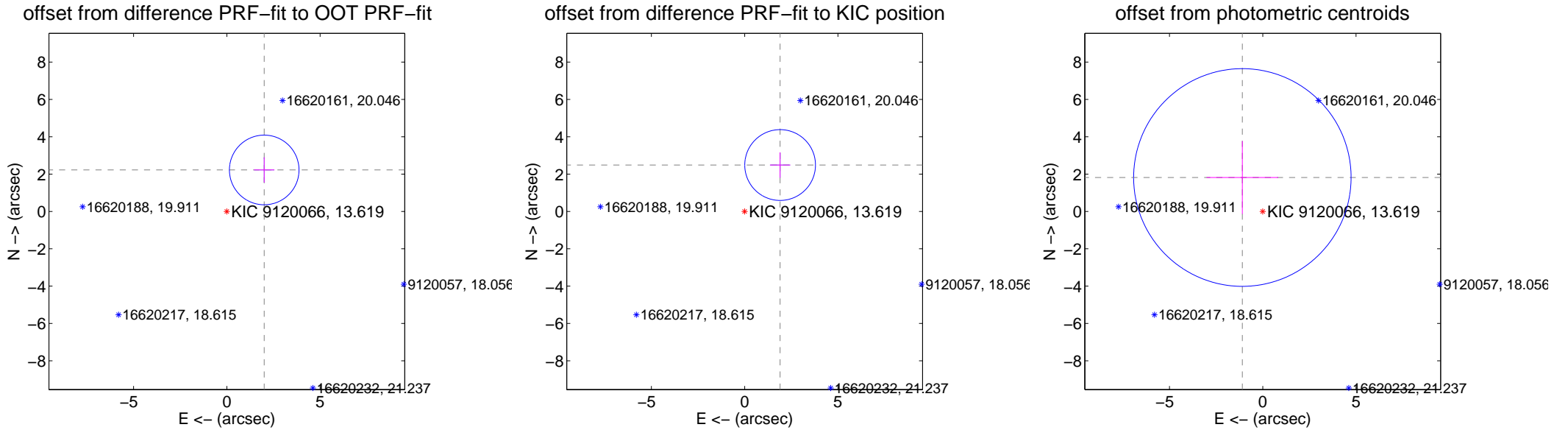
DV Centroid Data

Supplemental centroid analysis for 009120066-06. Kepler magnitude: 13.62. Transit SNR 7.40

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.992 ± 0.622	4.81	-2.003 ± 0.546	2.222 ± 0.677
PRF-fit source offset from KIC position	3.128 ± 0.632	4.95	-1.900 ± 0.546	2.485 ± 0.677
photometric centroid source offset	2.12 ± 1.94	1.09	1.09 ± 1.92	1.82 ± 1.95



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

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

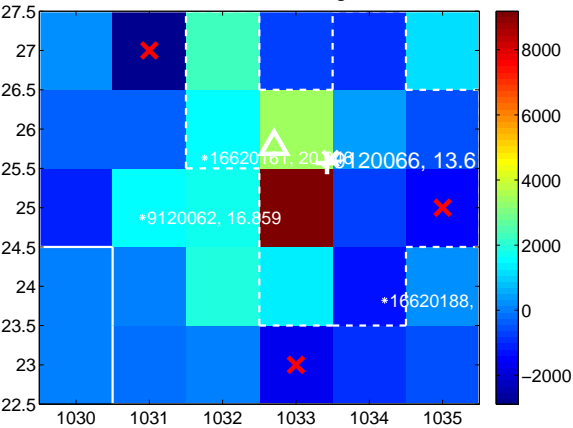
Q1 no difference image



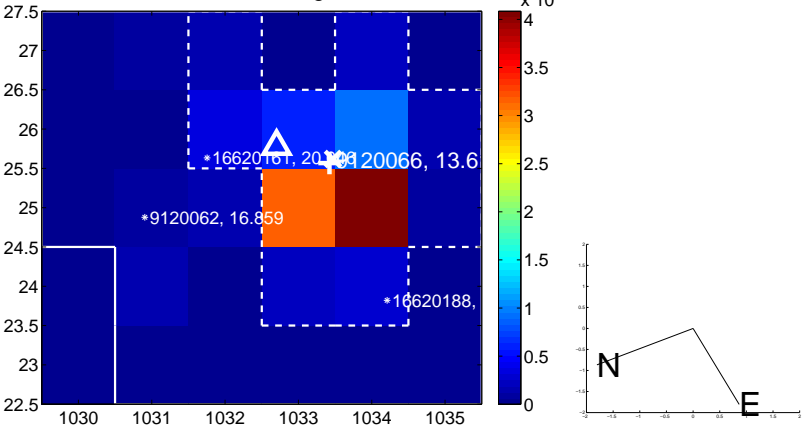
Q1 no OOT image



Q2 difference image



Q2 OOT image



Q3 no difference image



Q3 no OOT image



Q4 no difference image



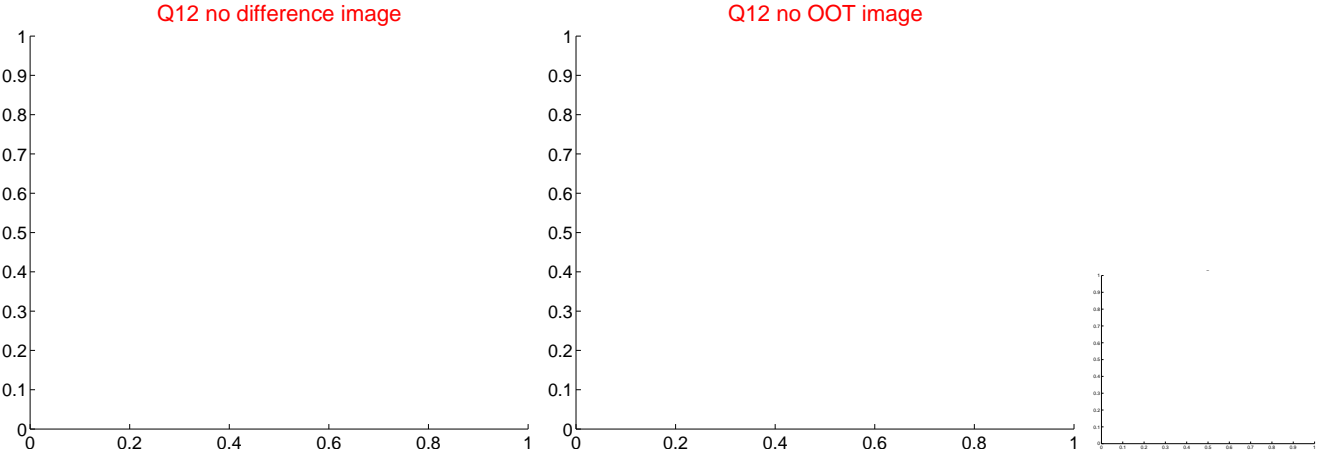
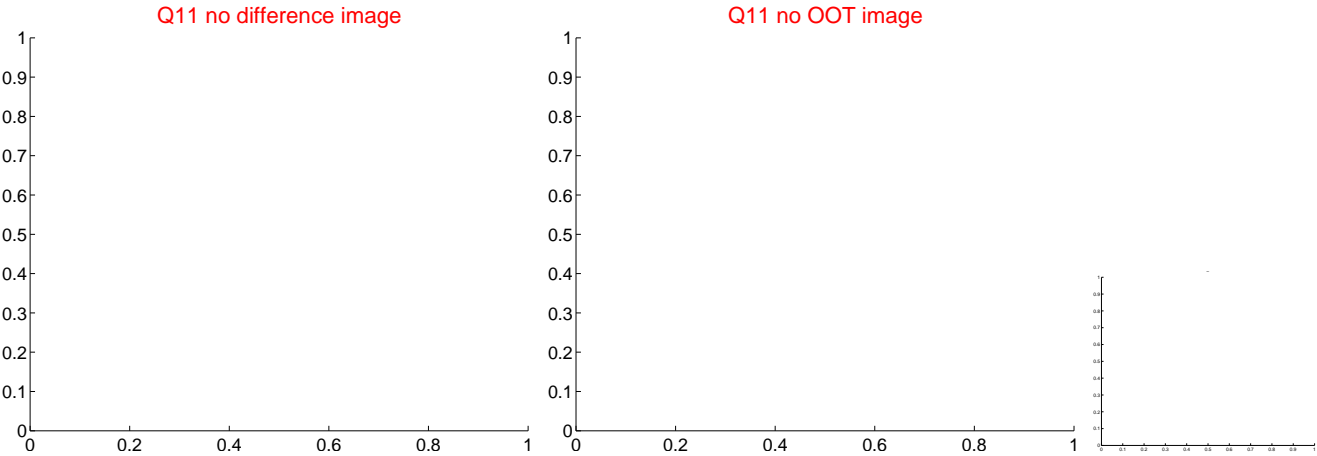
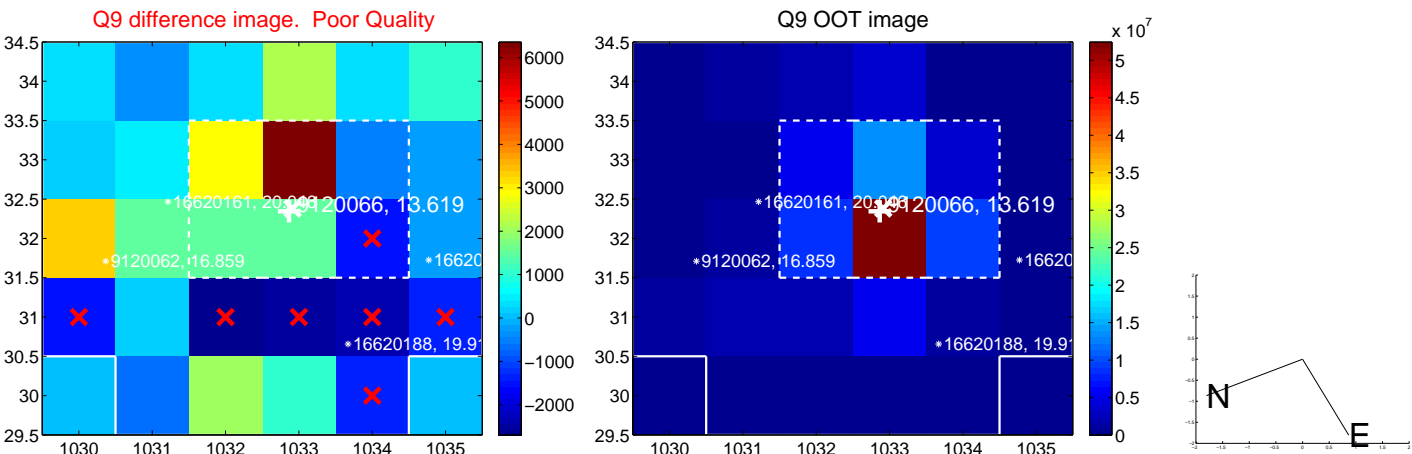
Q4 no OOT image



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



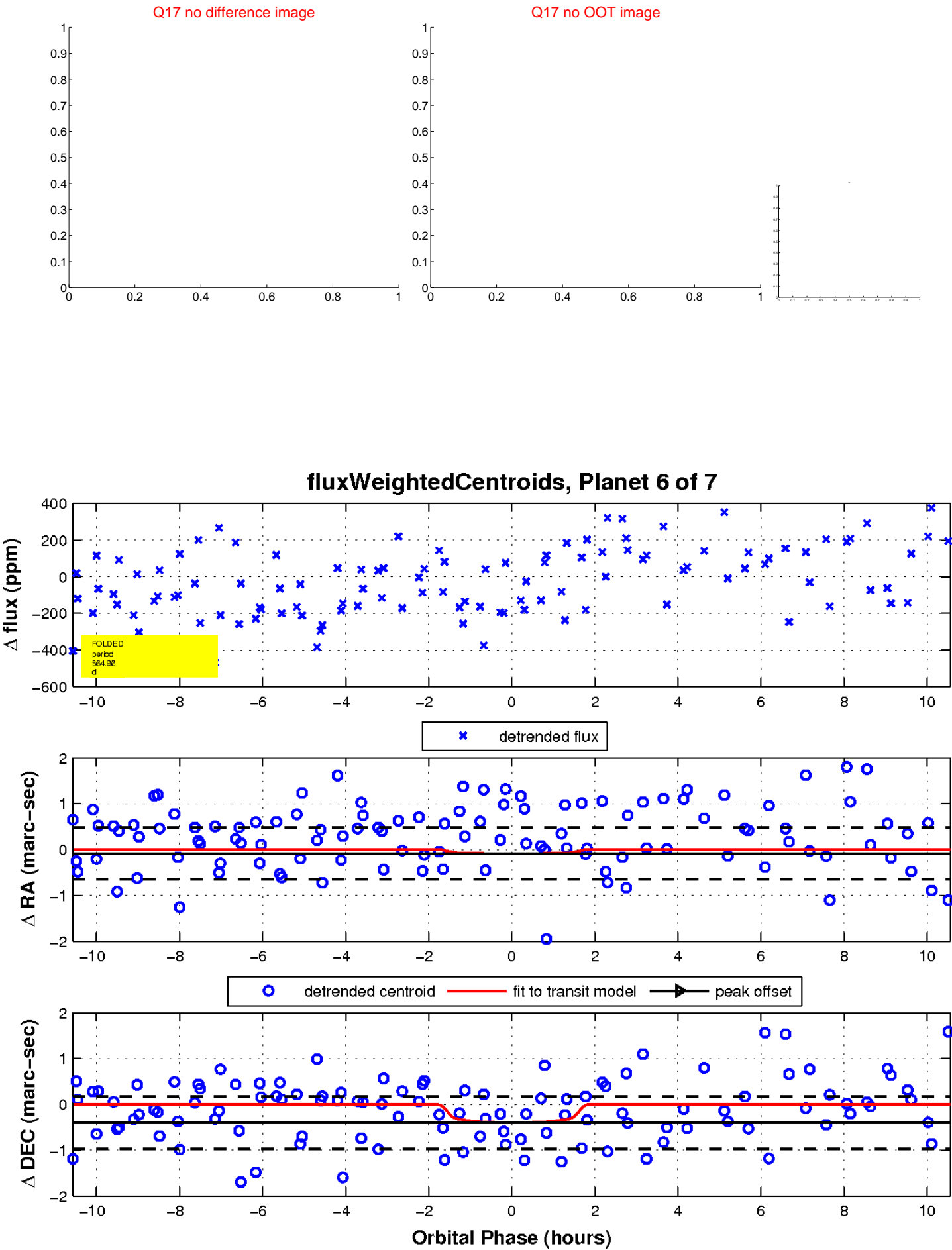
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

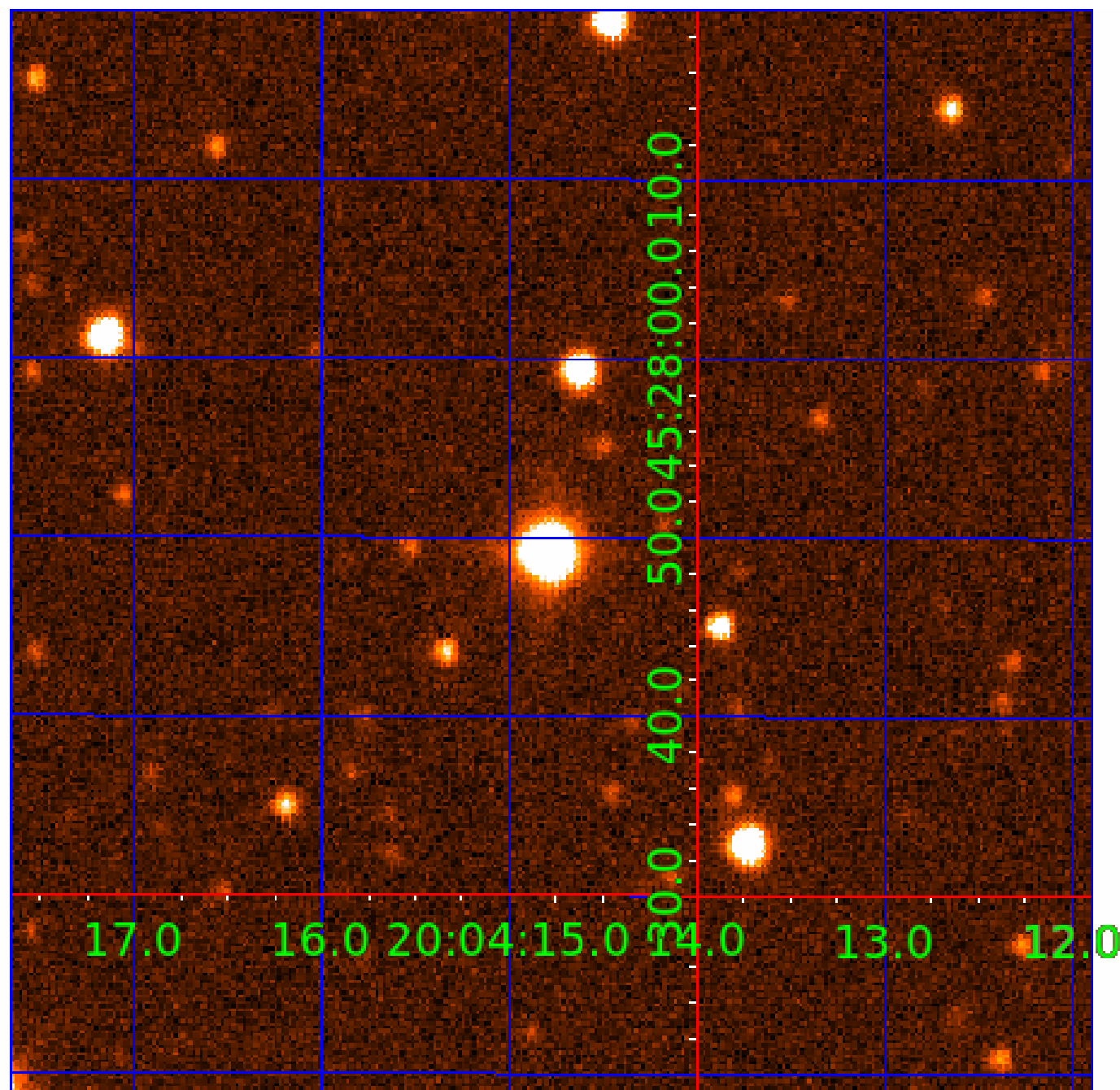


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009120066

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})
009120066-01	OBS	No	2.308947	133.462235	41.2	12.551	7.8	9.9	1.73	5750	1.16	2438.98
009120066-02	OBS	No	232.912176	248.251506	410.6	16.047	10.9	7.0	1.73	5750	3.75	5.19
009120066-03	OBS	No	272.722309	221.862472	454.5	21.520	10.4	7.9	1.73	5750	4.04	4.21
009120066-04	OBS	No	68.179339	134.255248	138.3	17.757	9.4	3.7	1.73	5750	2.15	26.72
009120066-06	OBS	No	364.962490	173.721434	293.5	3.533	7.6	7.4	1.73	5750	3.52	2.85
009120066-07	OBS	No	281.499235	266.893089	285.3	15.289	8.8	5.0	1.73	5750	3.04	4.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009120066-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
009120066-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
009120066-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009120066-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
009120066-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009120066-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

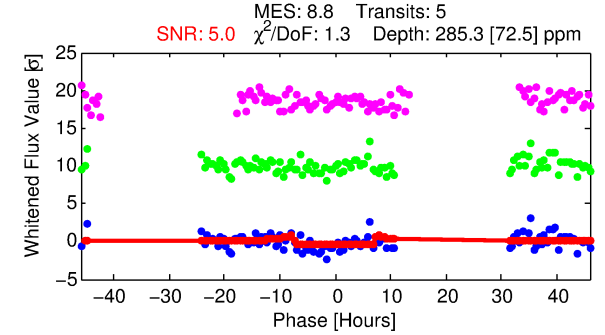
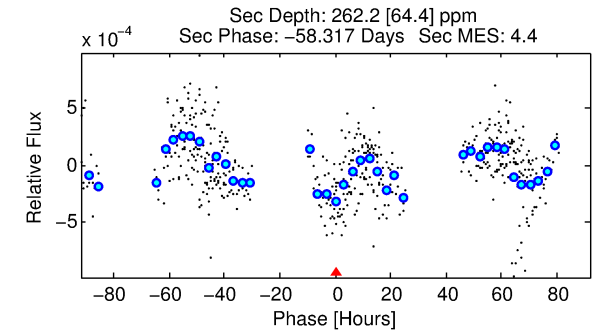
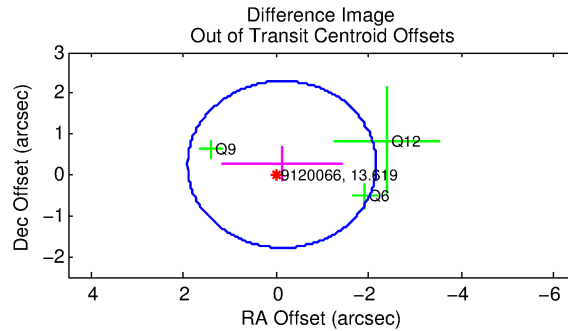
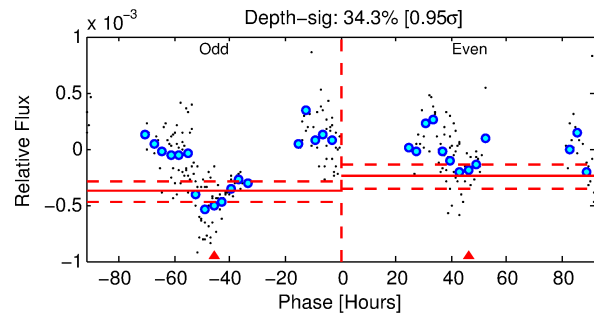
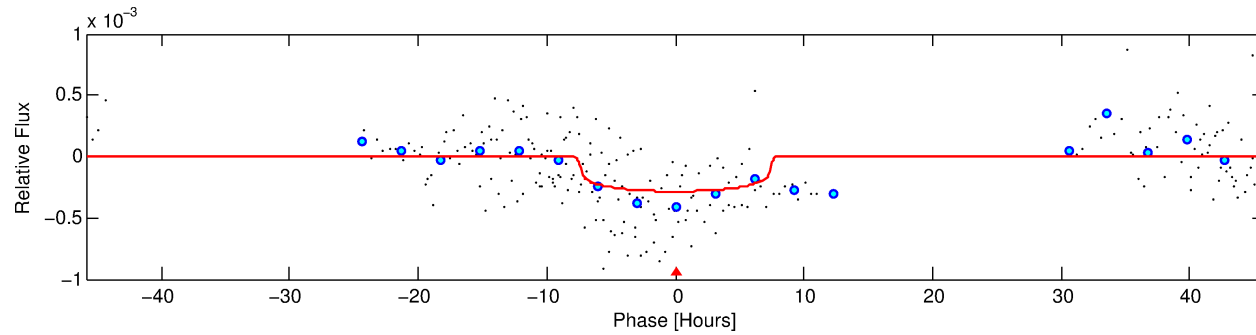
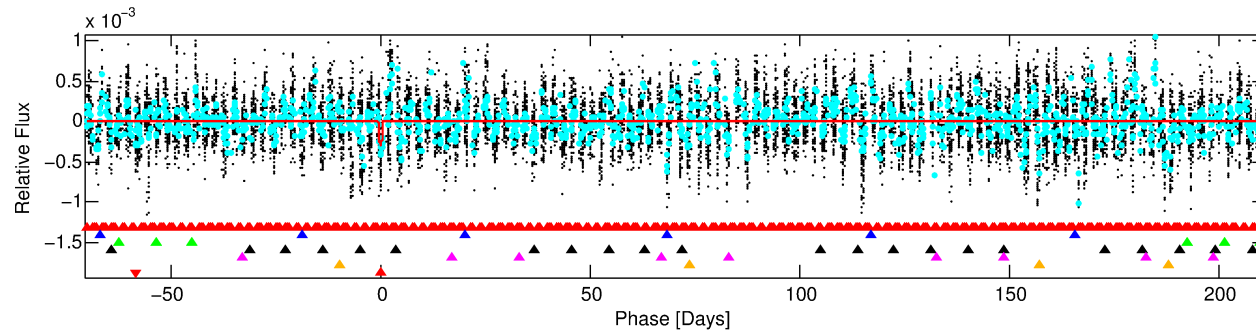
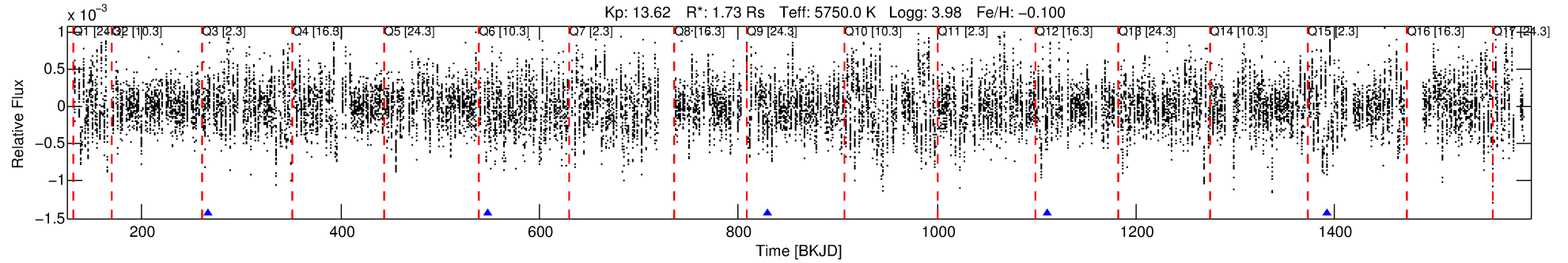
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009120066-07

No Significant Match Found

DV One-Page Summary

KIC: 9120066 Candidate: 7 of 7 Period: 281.499 d



DV Fit Results:

Period = 281.49923 [0.01125] d
Epoch = 266.8931 [0.0382] BKJD
Rp/R* = 0.0161 [0.0108]
a/R* = 115.17 [338.78]
b = 0.60 [3.19]
Seff = 4.03 [3.03]
Teq = 361 [68] K
Rp = 3.04 [2.42] Re
a = 0.8509 [0.3791] AU
Ag = 11321.91 [17537.16] [0.65 σ]
Teffp = 5764 [1971] K [2.74 σ]

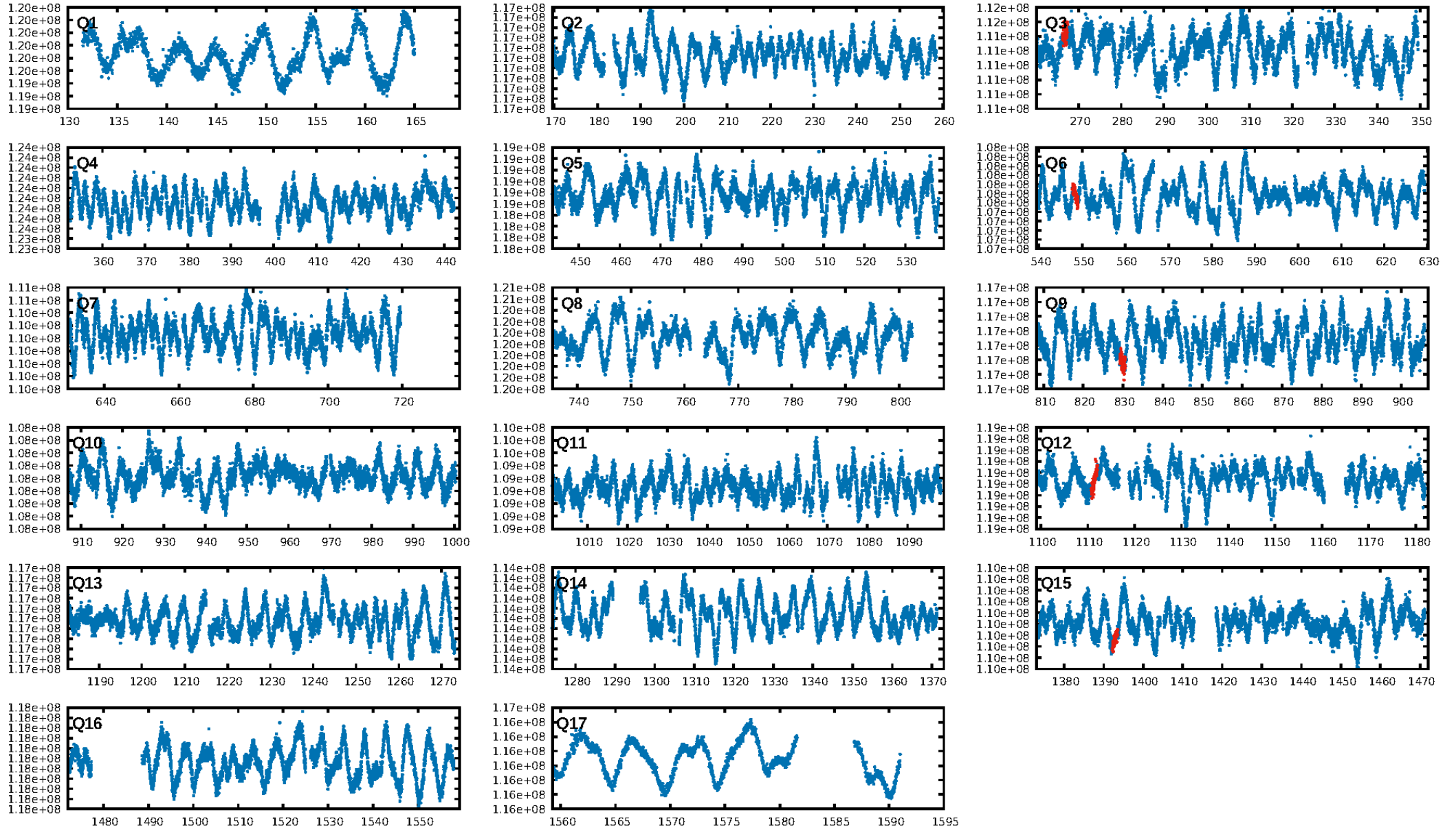
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [7.98 σ]
LongPeriod-sig: 100.0% [127.65 σ]
ModelChiSquare2-sig: 14.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.02e-10
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.3489
Centroid-sig: 0.5%
Centroid-so: 2.271 arcsec [2.63 σ]
OotOffset-rm: 0.283 arcsec [0.42 σ]
KicOffset-rm: 0.578 arcsec [1.27 σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/3]

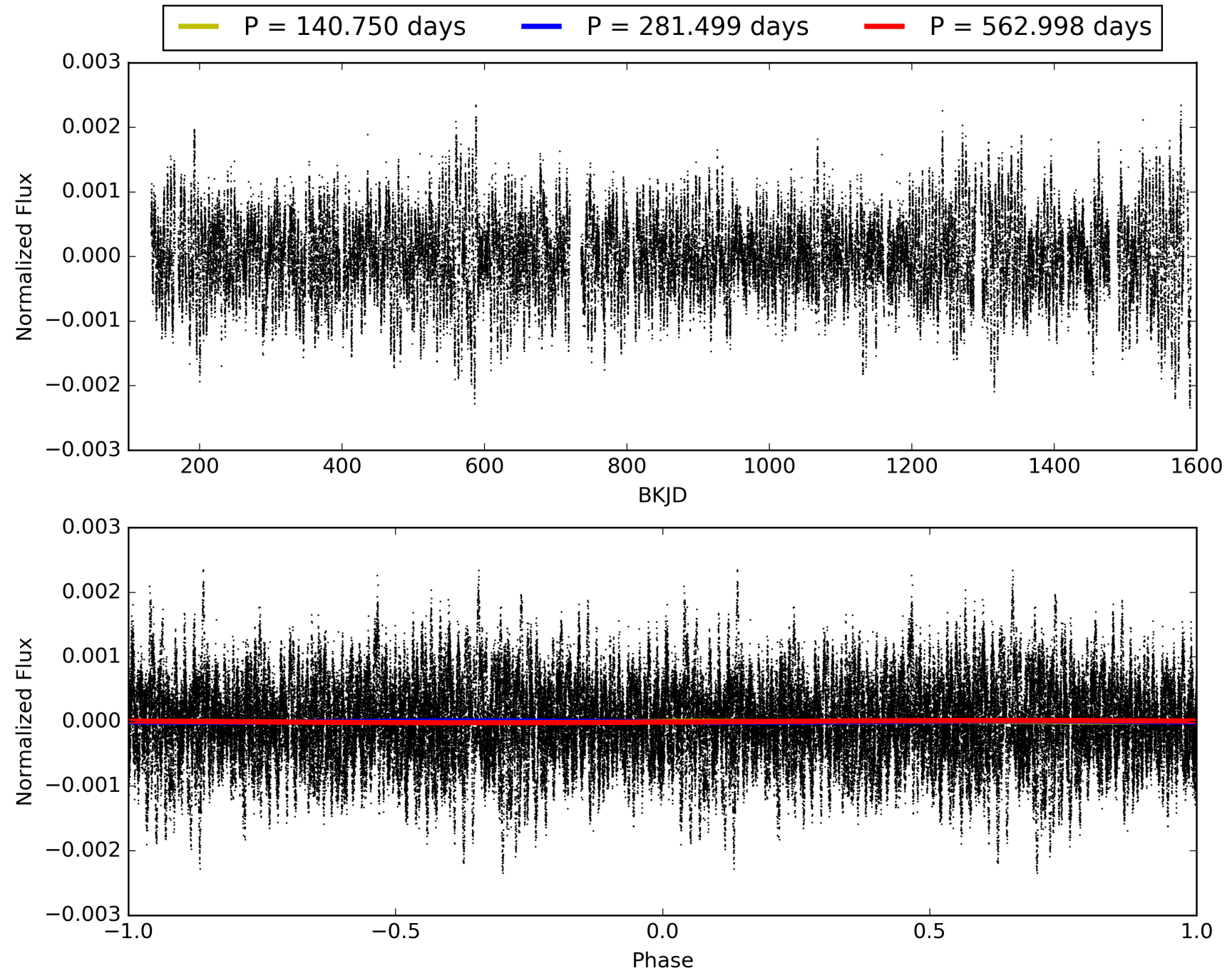
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 08:13:06 Z

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

TCE 009120066-07, PDC Light Curves

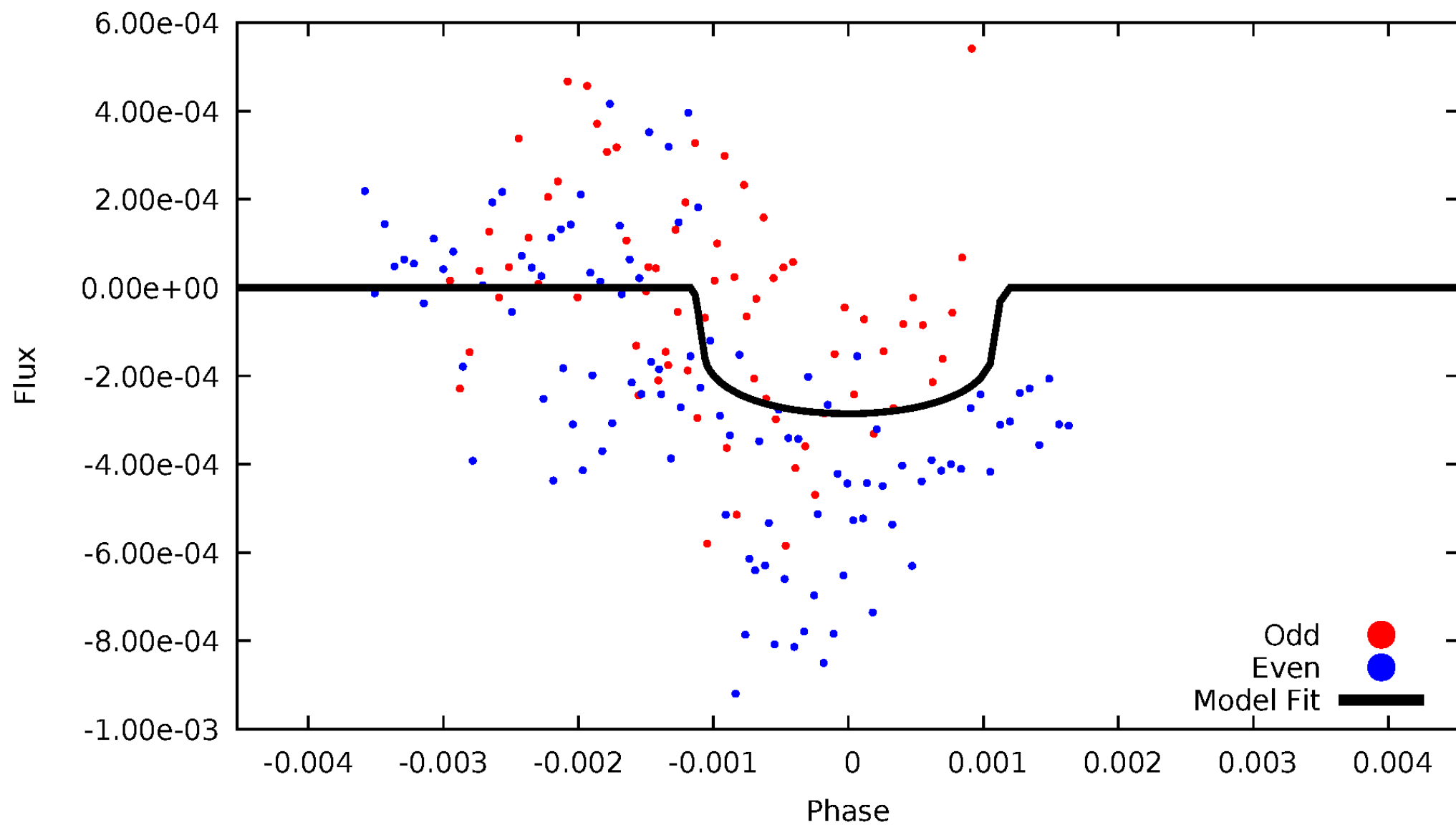


TCE 009120066-07



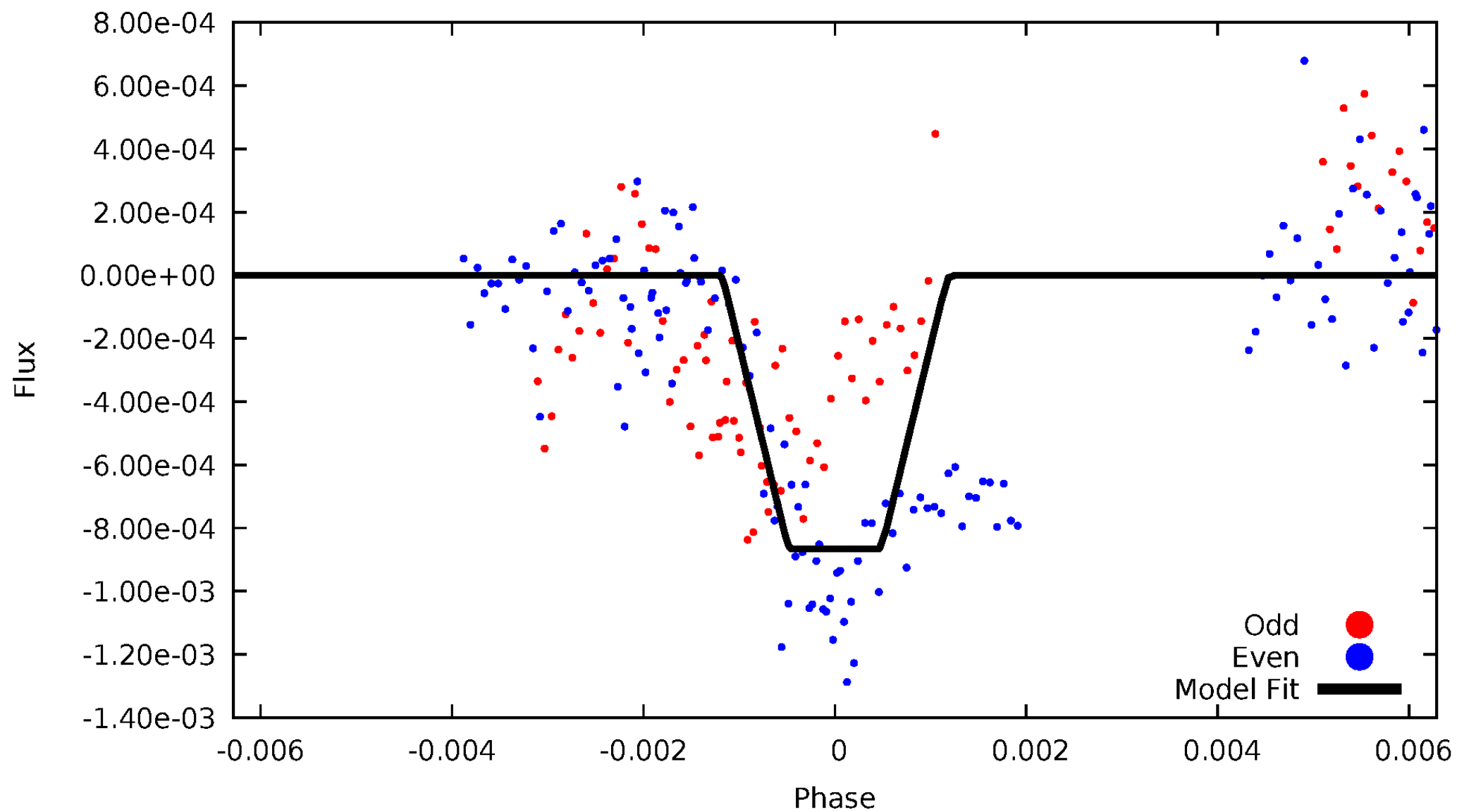
DV Odd/Even

TCE 009120066-07



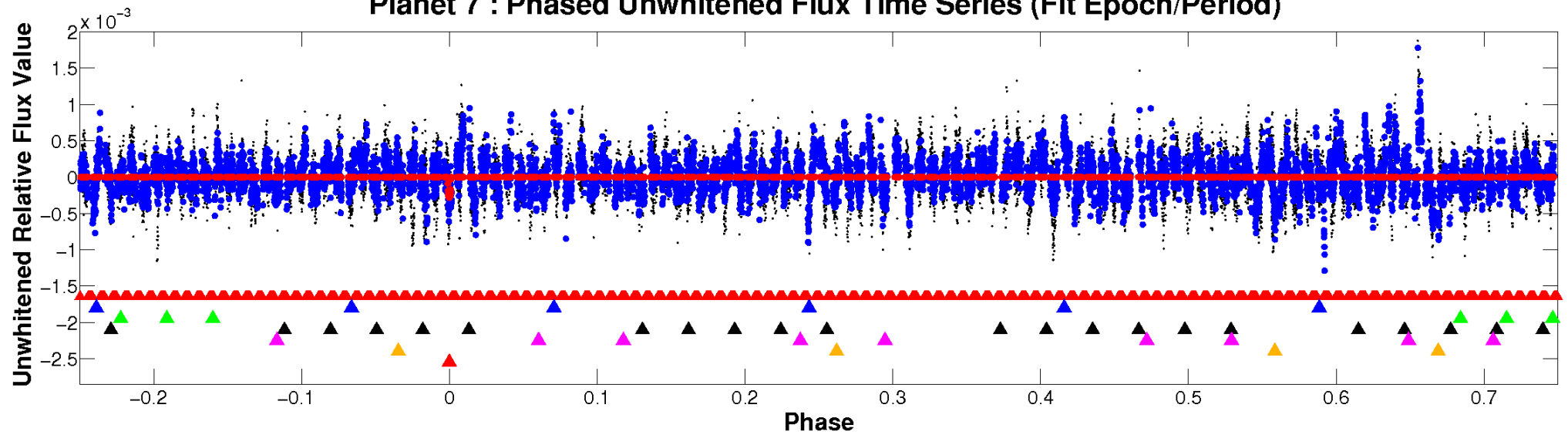
ALT Odd/Even

TCE 009120066-07

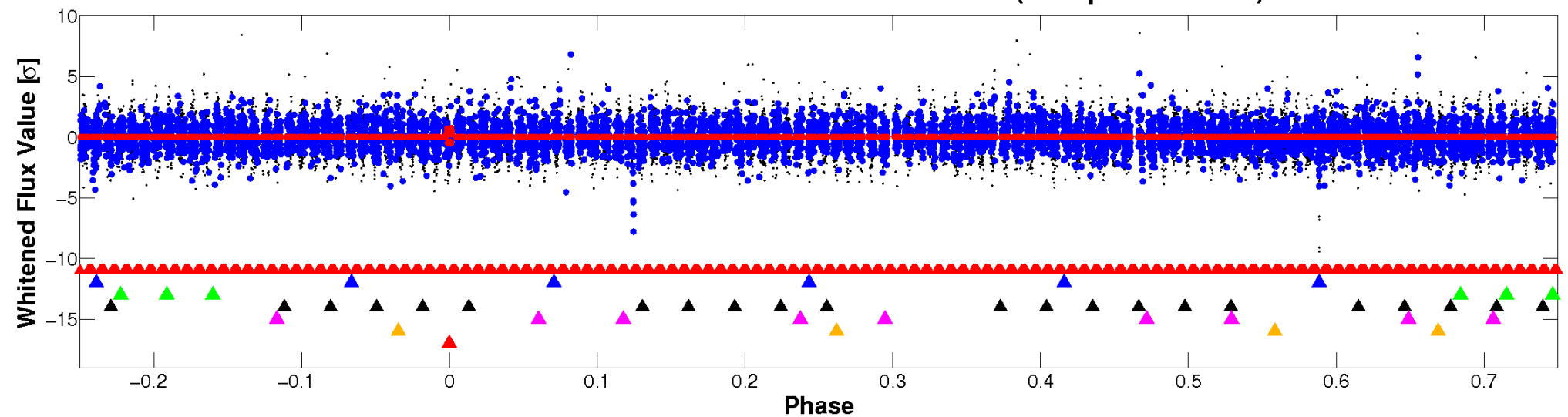


Non-Whitened Vs. Whitened Light Curve

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

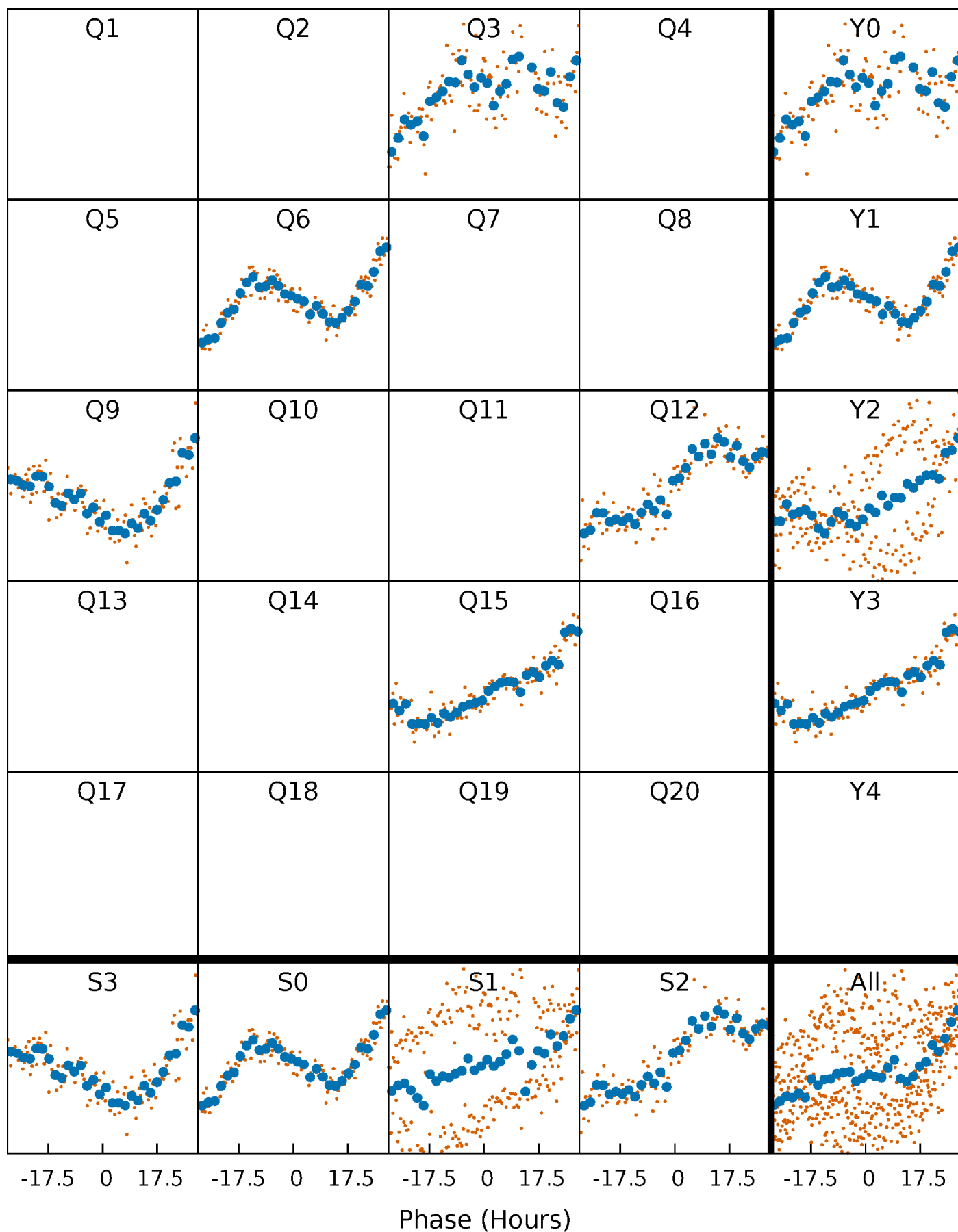


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



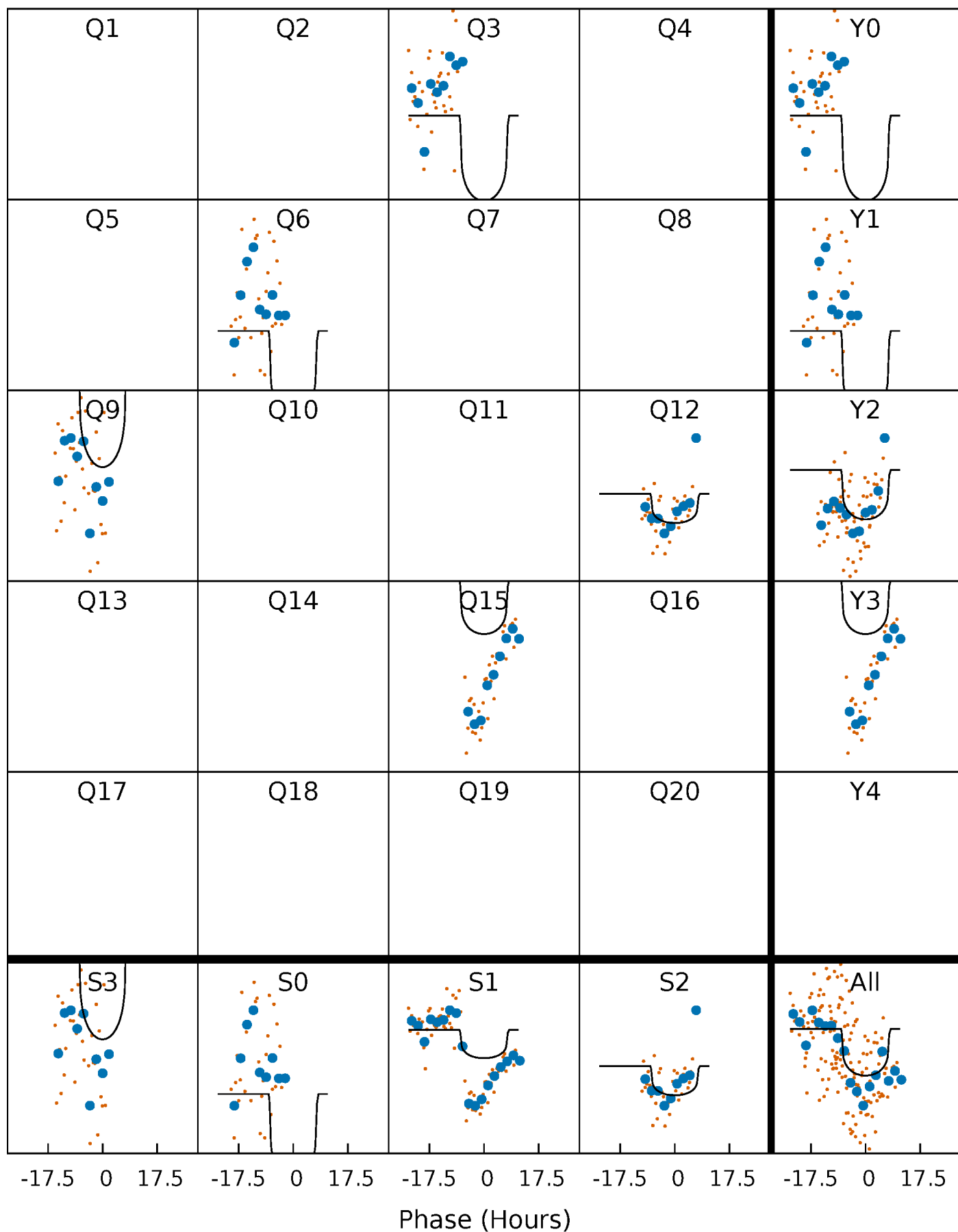
PDC Quarter-Phased Transit Curves

TCE 009120066-07 P=281.499235 Days $T_0=266.893089$ (BKJD)



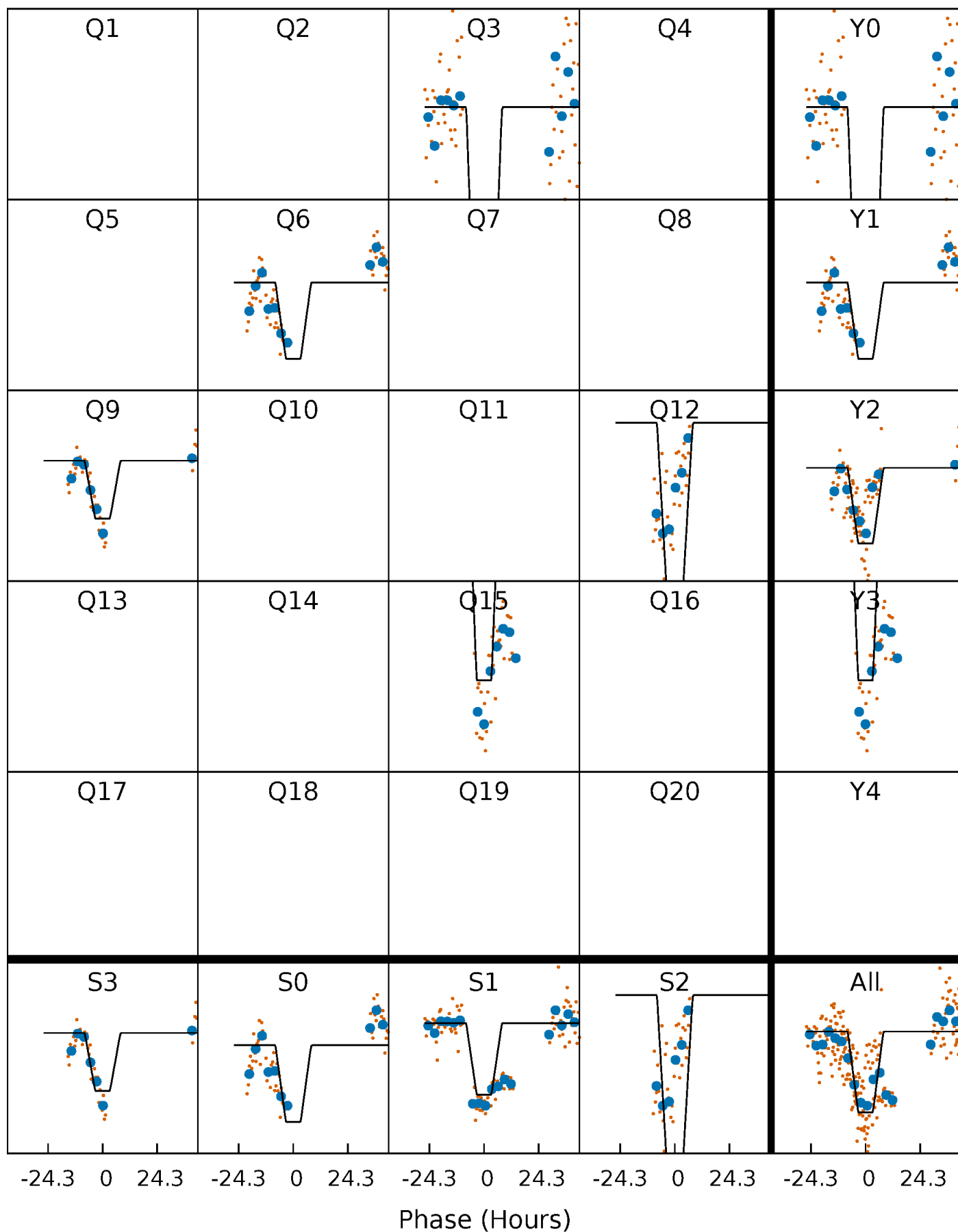
DV Quarter-Phased Transit Curves

TCE 009120066-07 P=281.499235 Days $T_0=266.893089$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

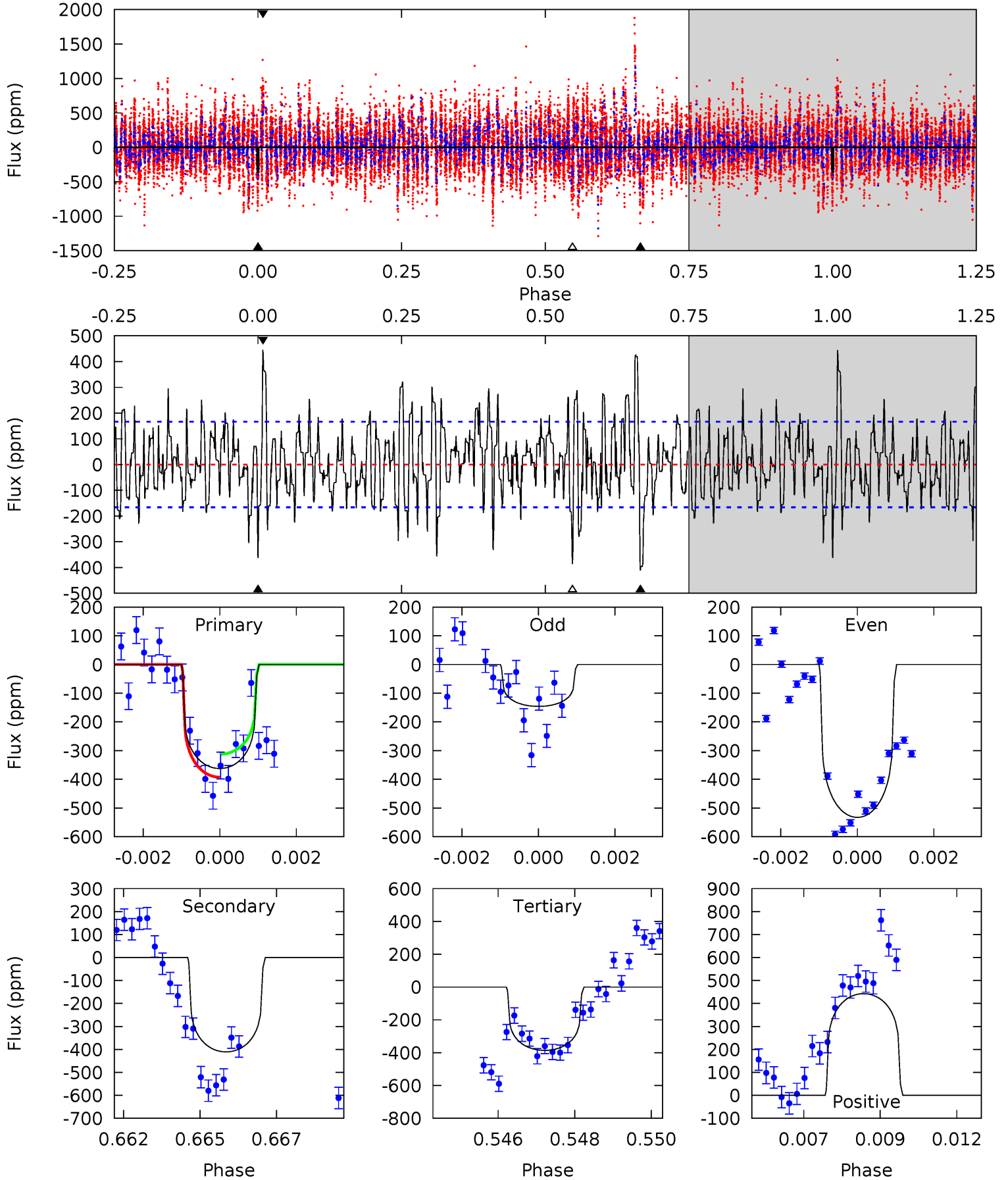
TCE 009120066-07 P=281.458667 Days $T_0=266.977397$ (BKJD)



DV Model-Shift Uniqueness Test

009120066-07, P = 281.499235 Days, E = 266.893089 Days

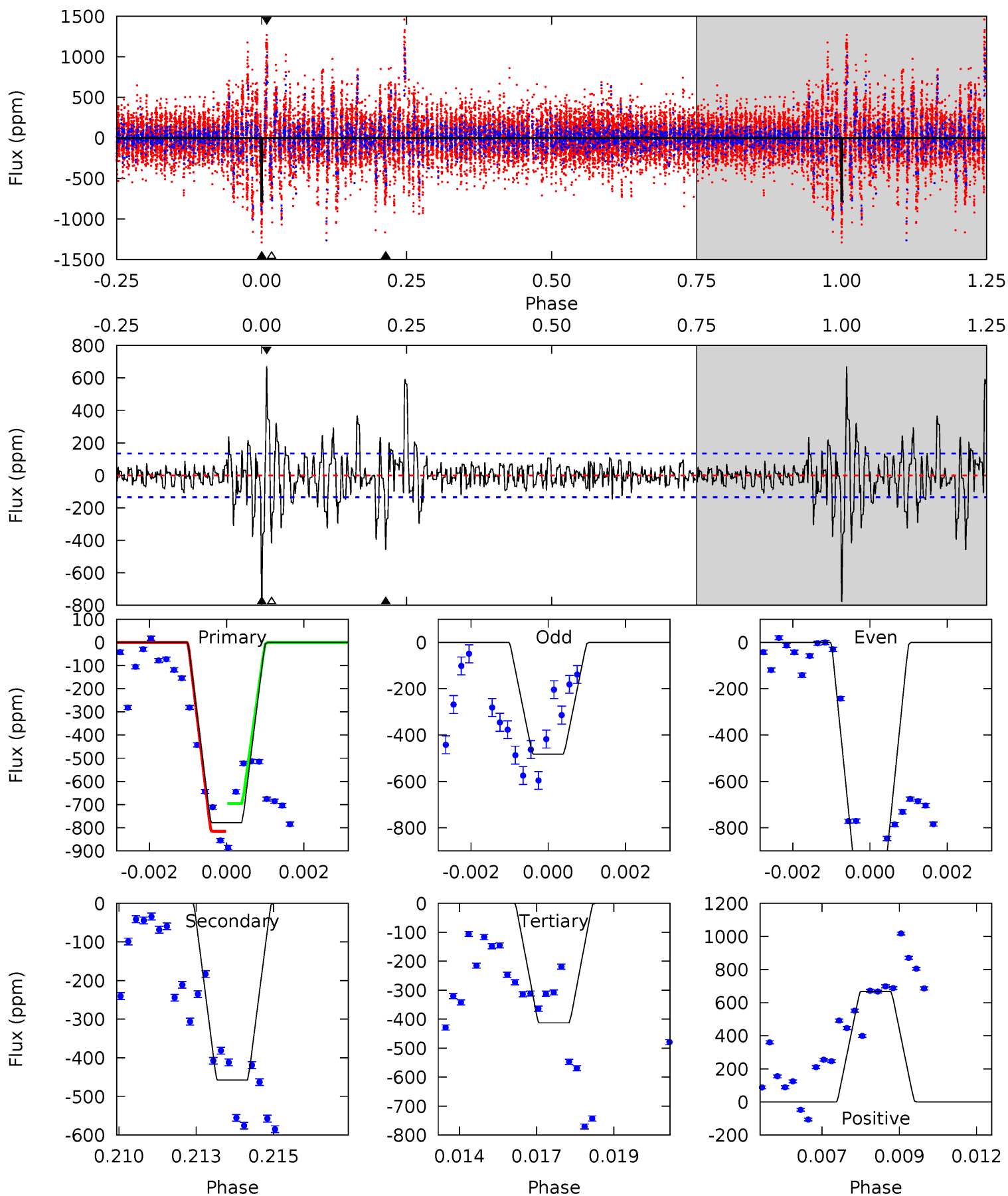
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	13.1	12.3	14.1	5.30	3.04	3.95	-0.76	-2.56	0.79	-1.01	6.14	0.99	0.52	1.24



Alt Model-Shift Uniqueness Test

009120066-07, P = 281.458667 Days, E = 266.977397 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.6	18.0	16.2	26.3	5.30	3.04	3.71	14.4	4.35	1.77	-8.26	9.44	0.88	0.46	2.25



Stellar Parameters For KIC 009120066

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5750^{+190}_{-173}	$3.979^{+0.443}_{-0.148}$	$-0.100^{+0.300}_{-0.300}$	$1.727^{+0.402}_{-0.746}$	$1.037^{+0.140}_{-0.155}$	$0.284^{+1.102}_{-0.115}$
	+3%/-3%	+11%/-4%	+300%/-300%	+23%/-43%	+14%/-15%	+388%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009120066-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-411 ± 31	$2.89^{+1.94}_{-1.70}$	498^{+39}_{-59}	6354^{+4345}_{-1354}	19804^{+94013}_{-13019}
Alt.	-458 ± 25	$5.22^{+2.58}_{-2.25}$	498^{+39}_{-60}	4978^{+1227}_{-634}	6756^{+14722}_{-3758}

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

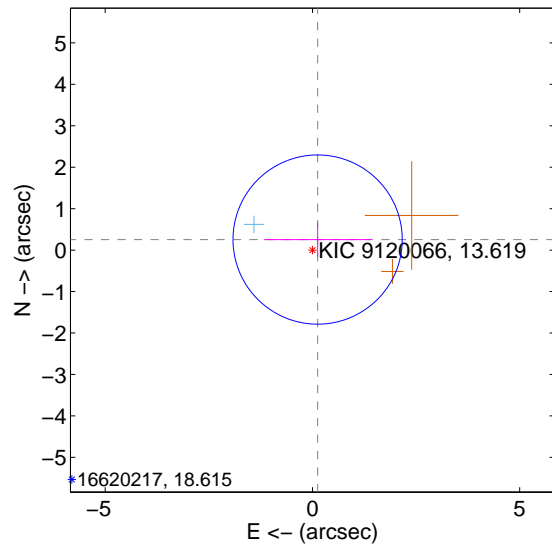
Supplemental centroid analysis for 009120066-07. Kepler magnitude: 13.62. Transit SNR 5.01

There are 1 quarters with good PRF difference image offsets

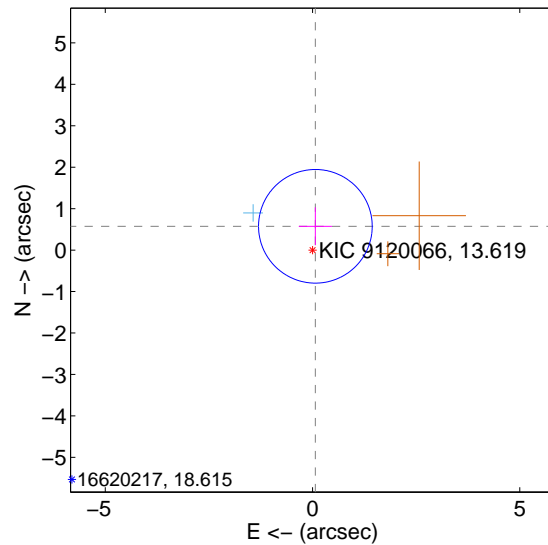
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.283 ± 0.680	0.42	-0.125 ± 1.290	0.254 ± 0.415
PRF-fit source offset from KIC position	0.578 ± 0.457	1.27	-0.069 ± 0.400	0.574 ± 0.458
photometric centroid source offset	2.27 ± 0.86	2.63	1.05 ± 0.80	2.01 ± 0.88

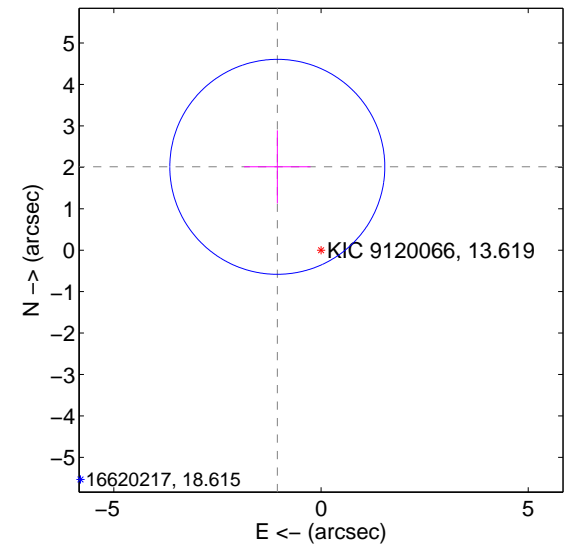
offset from difference PRF-fit to OOT PRF-fit



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.

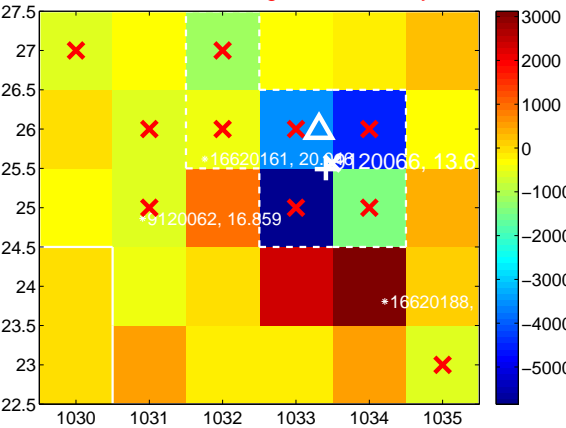
Q5 no difference image



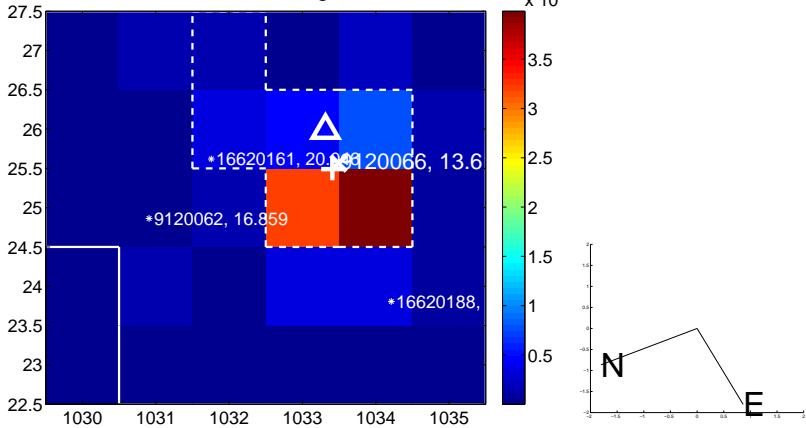
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



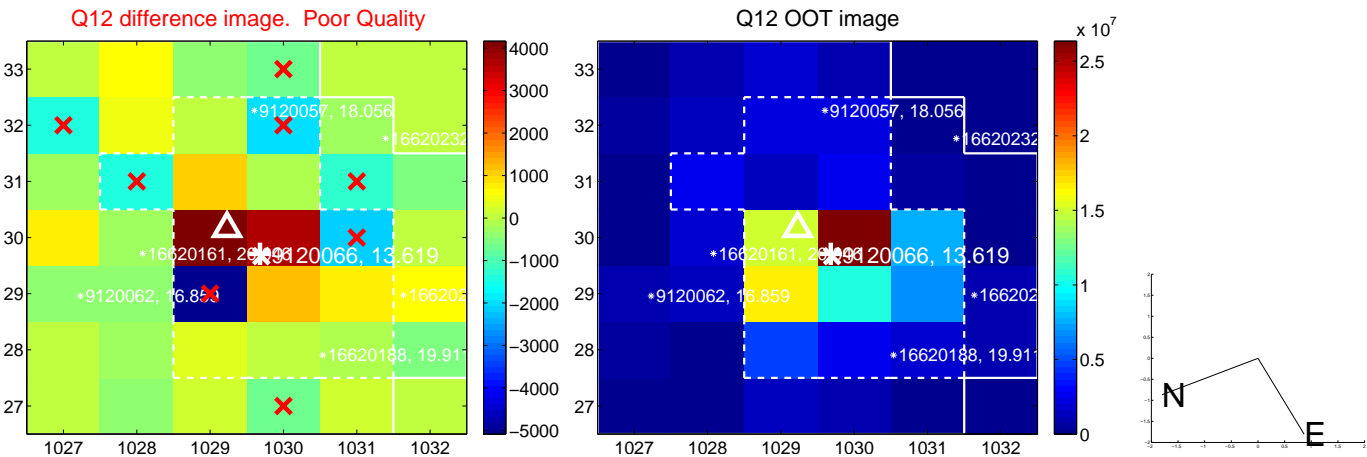
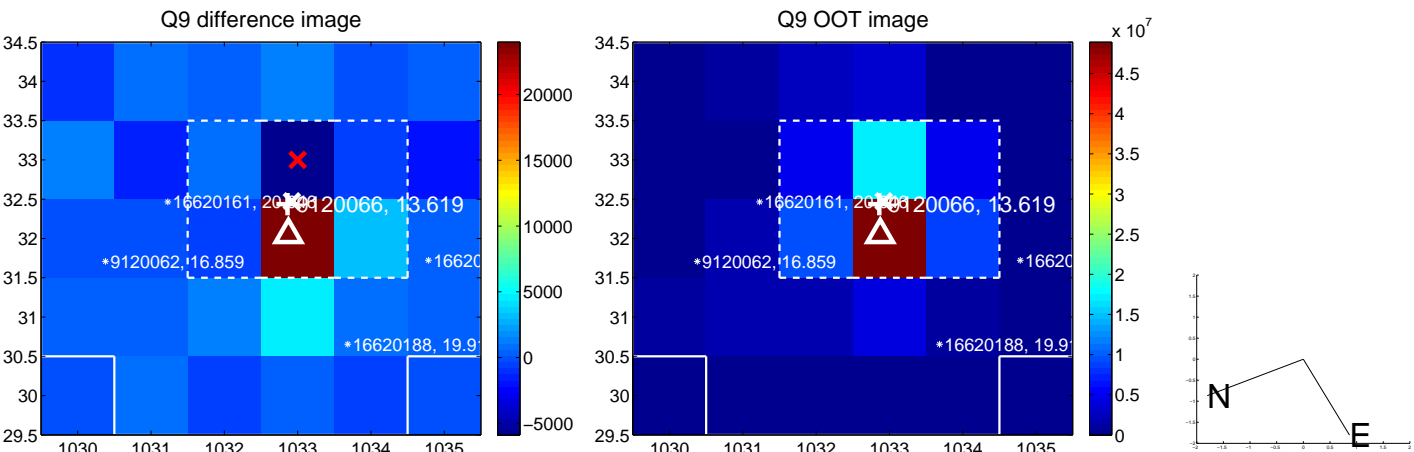
Q8 no difference image



Q8 no OOT image



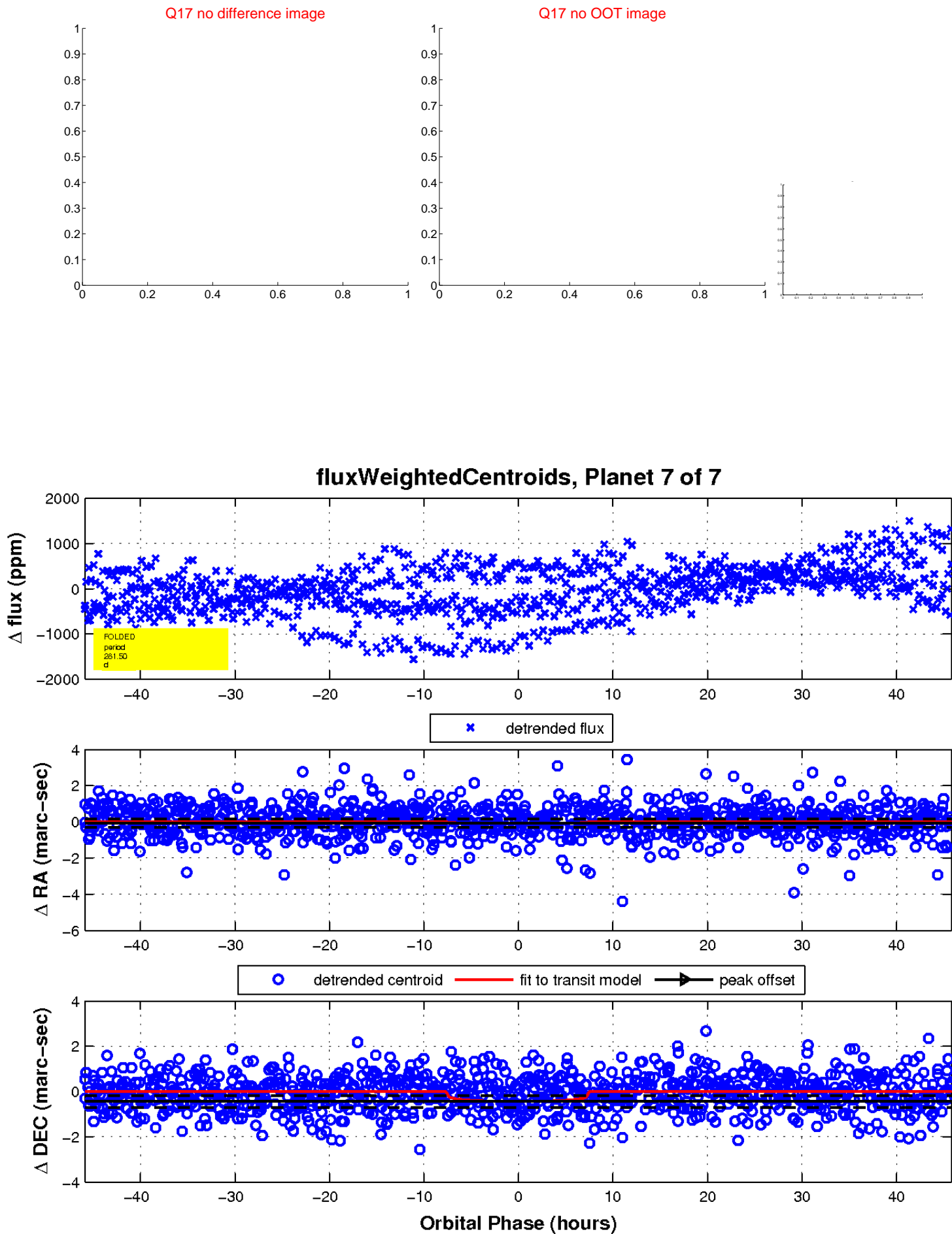
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

