

KIC 005651181

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})
005651181-01	OBS	No	1.185583	131.814436	197.7	7.276	16.1	18.6	3.06	8529	5.75	58102.92
005651181-02	OBS	No	39.093056	147.891065	1054.2	1.960	10.3	9.3	3.06	8529	11.35	549.51
005651181-03	OBS	No	48.871451	179.886132	1084.3	2.122	10.6	10.7	3.06	8529	10.68	408.04
005651181-04	OBS	No	10.585976	133.252295	603.5	3.842	10.0	11.7	3.06	8529	13.48	3136.65
005651181-05	OBS	No	30.210162	157.332033	207.6	3.000	10.8	-1.0	3.06	8529	4.48	774.88

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005651181-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005651181-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005651181-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005651181-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005651181-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

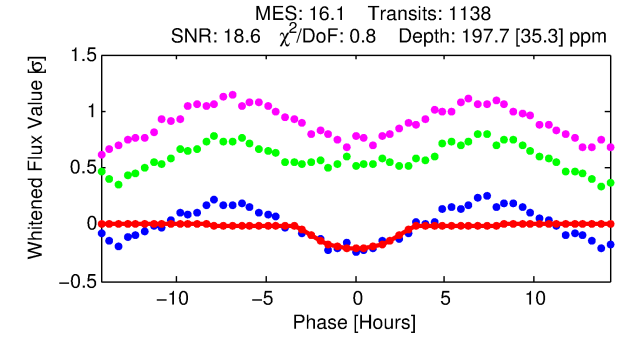
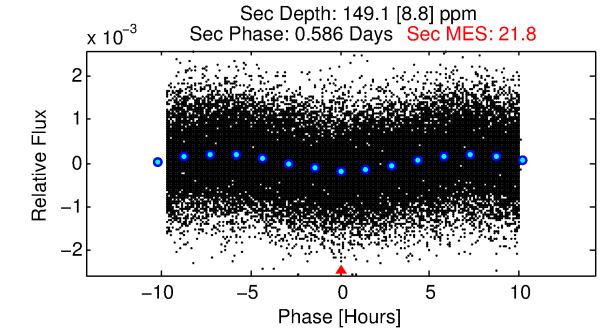
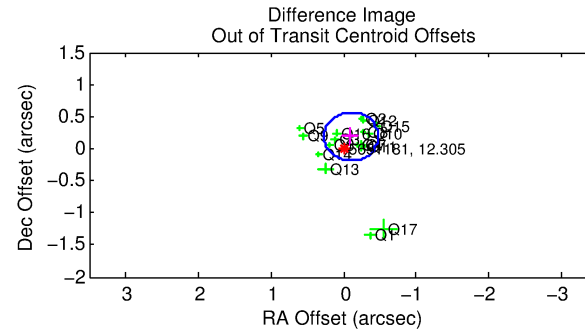
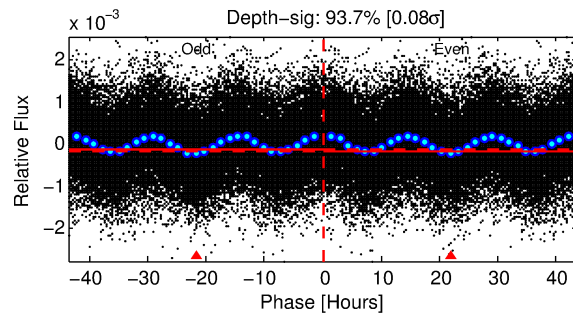
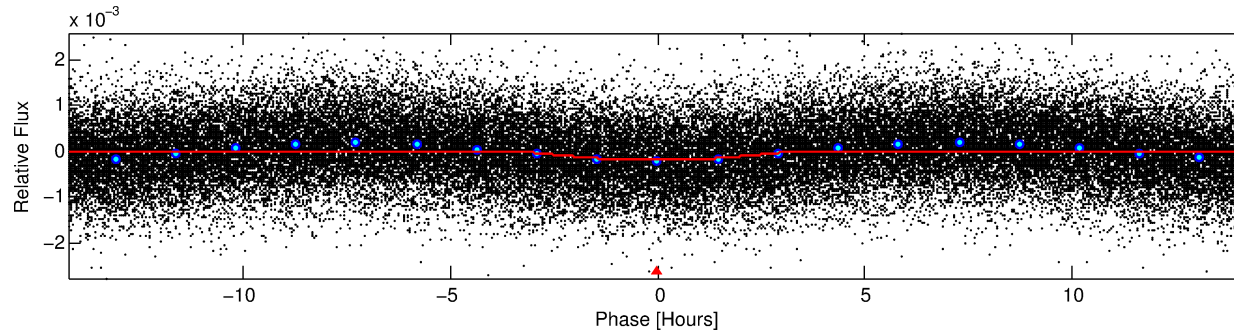
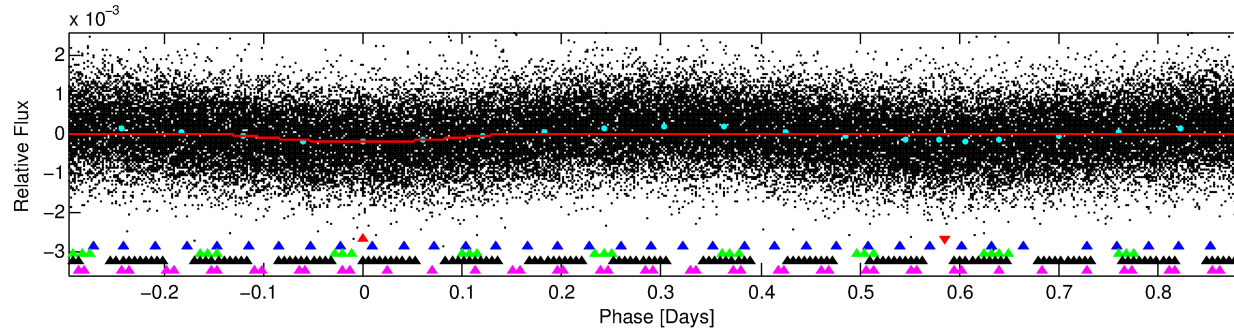
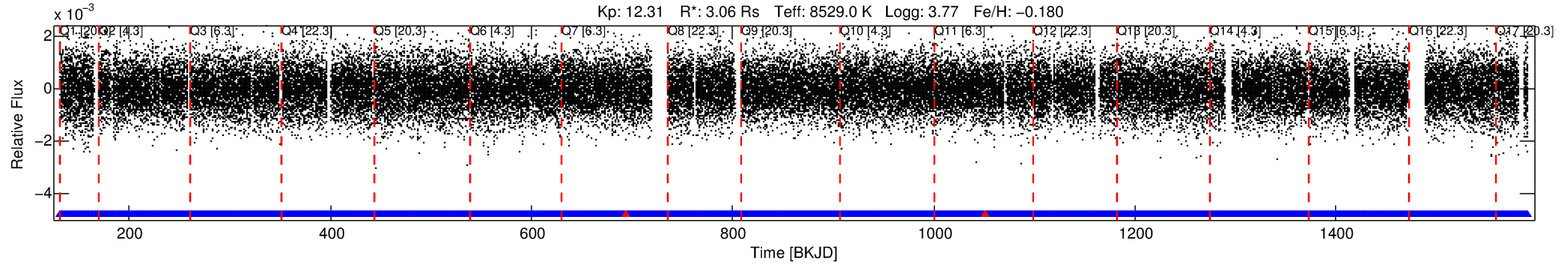
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005651181-01

No Significant Match Found

DV One-Page Summary

KIC: 5651181 Candidate: 1 of 5 Period: 1.186 d



DV Fit Results:

Period = 1.18558 [0.00001] d
Epoch = 131.8144 [0.0068] BKJD
Rp/R* = 0.0172 [0.0025]
a/R* = 1.05 [0.01]
b = 0.98 [0.01]
Seff = 58102.92 [39686.58]
Teq = 3959 [676] K
Rp = 5.75 [2.68] Re
a = 0.0277 [0.0116] AU
Ag = 1.90 [1.38] [0.65 σ]
Teffp = 7188 [619] K [3.52 σ]

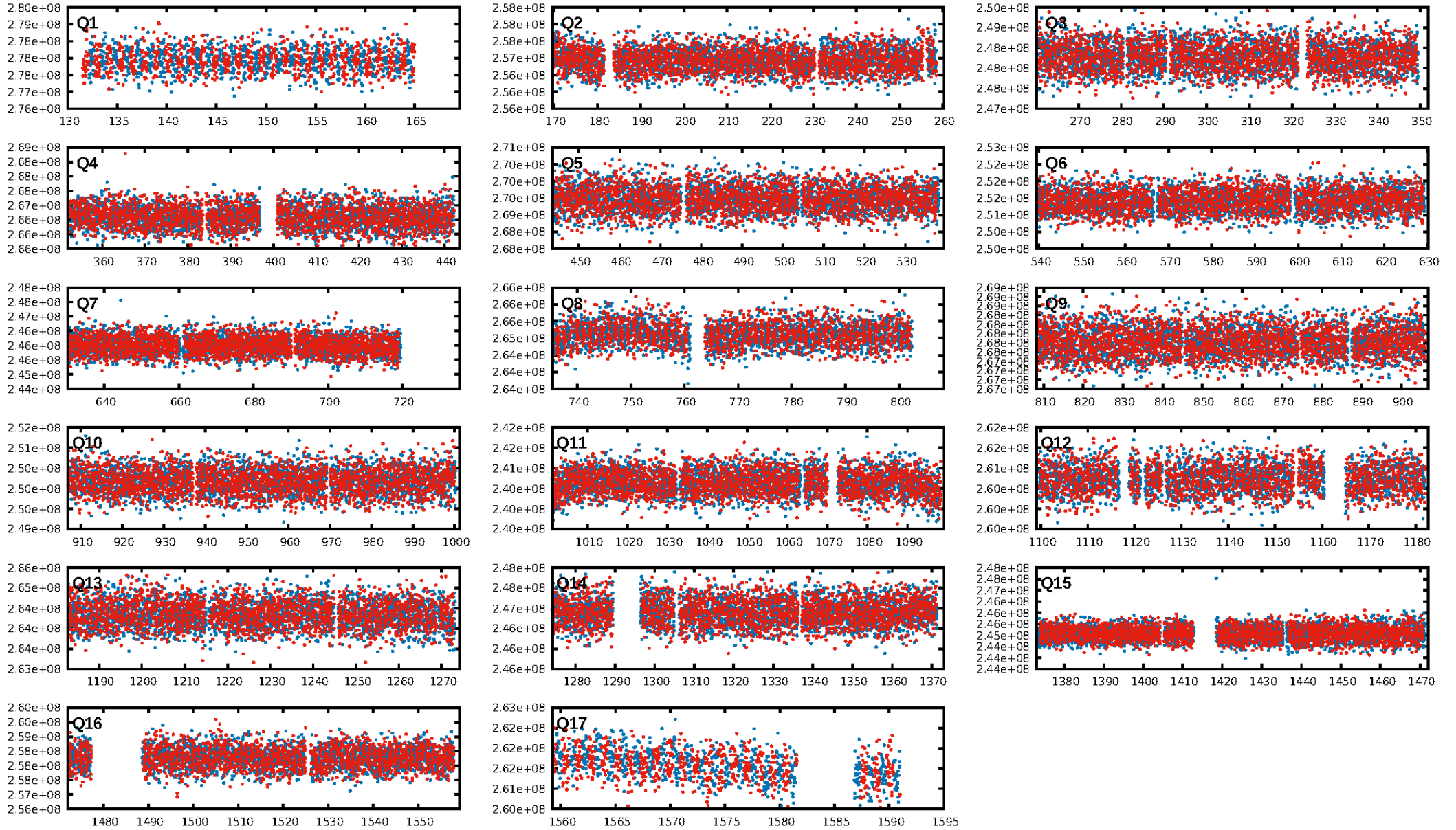
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [27.42 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1085/1087]
GhostDiagnostic-chr: 1.49
Centroid-sig: 0.0%
Centroid-so: 0.299 arcsec [2.94 σ]
OotOffset-rm: 0.214 arcsec [1.71 σ]
KicOffset-rm: 0.439 arcsec [4.04 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

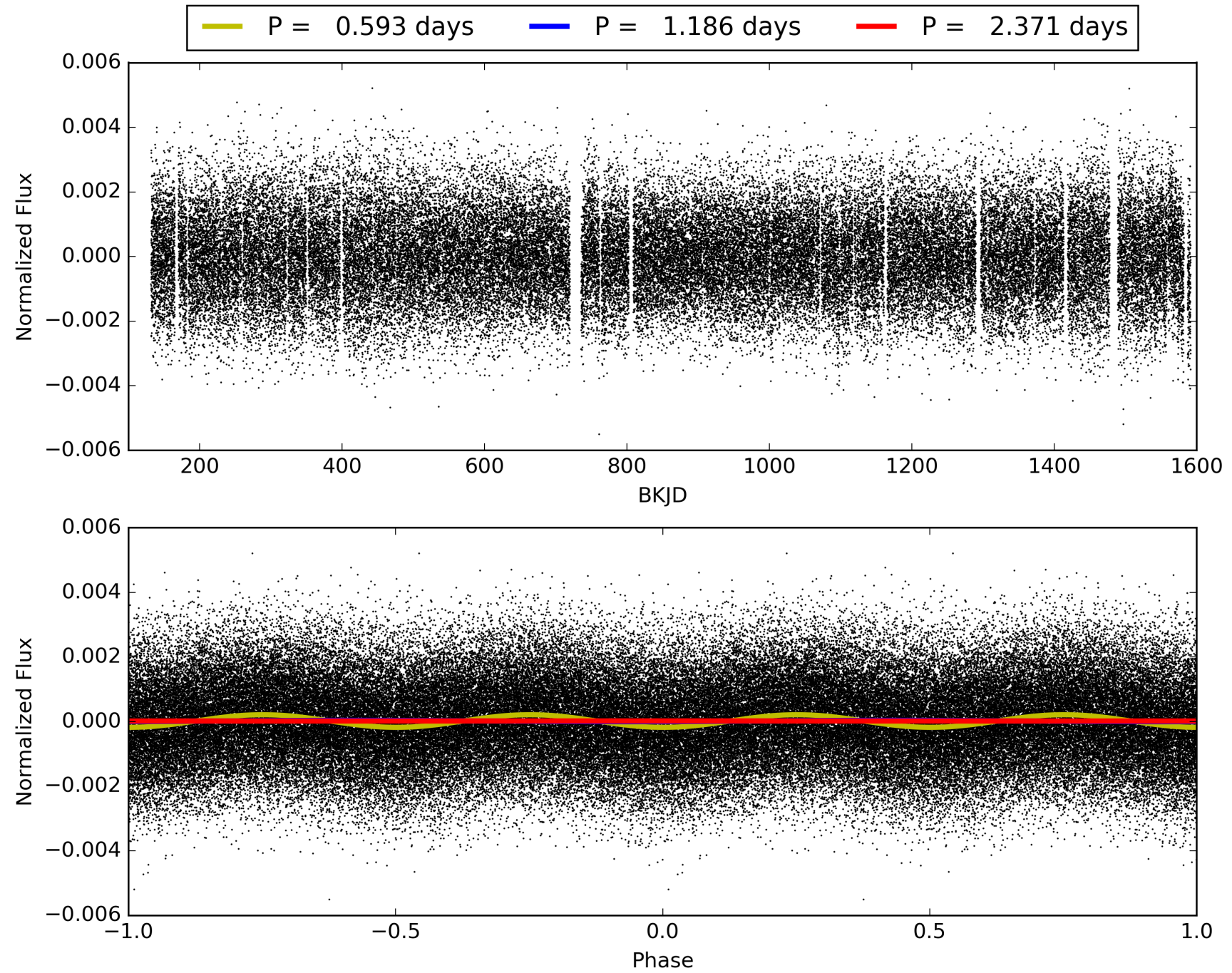
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005651181-01, PDC Light Curves

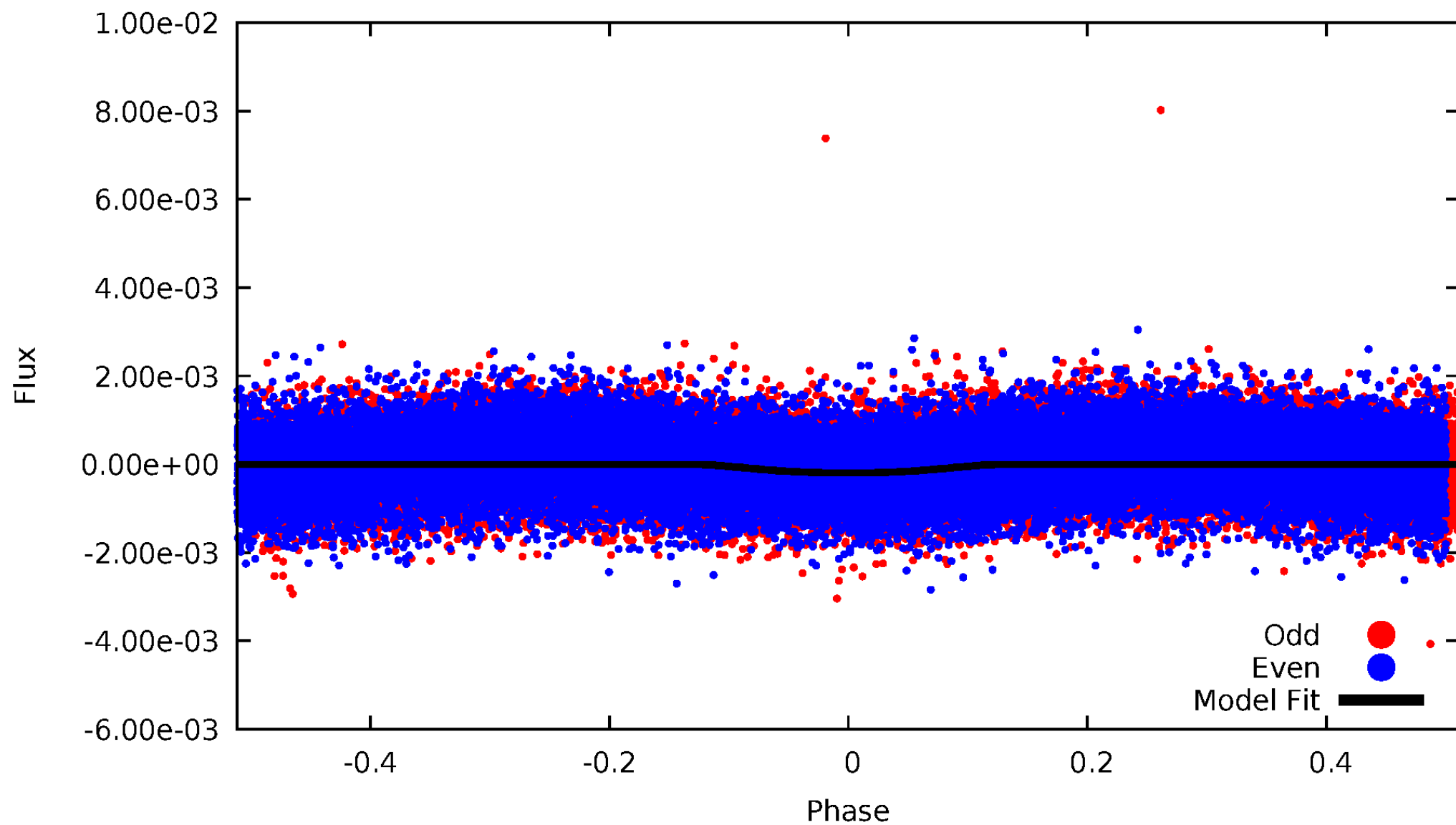


TCE 005651181-01



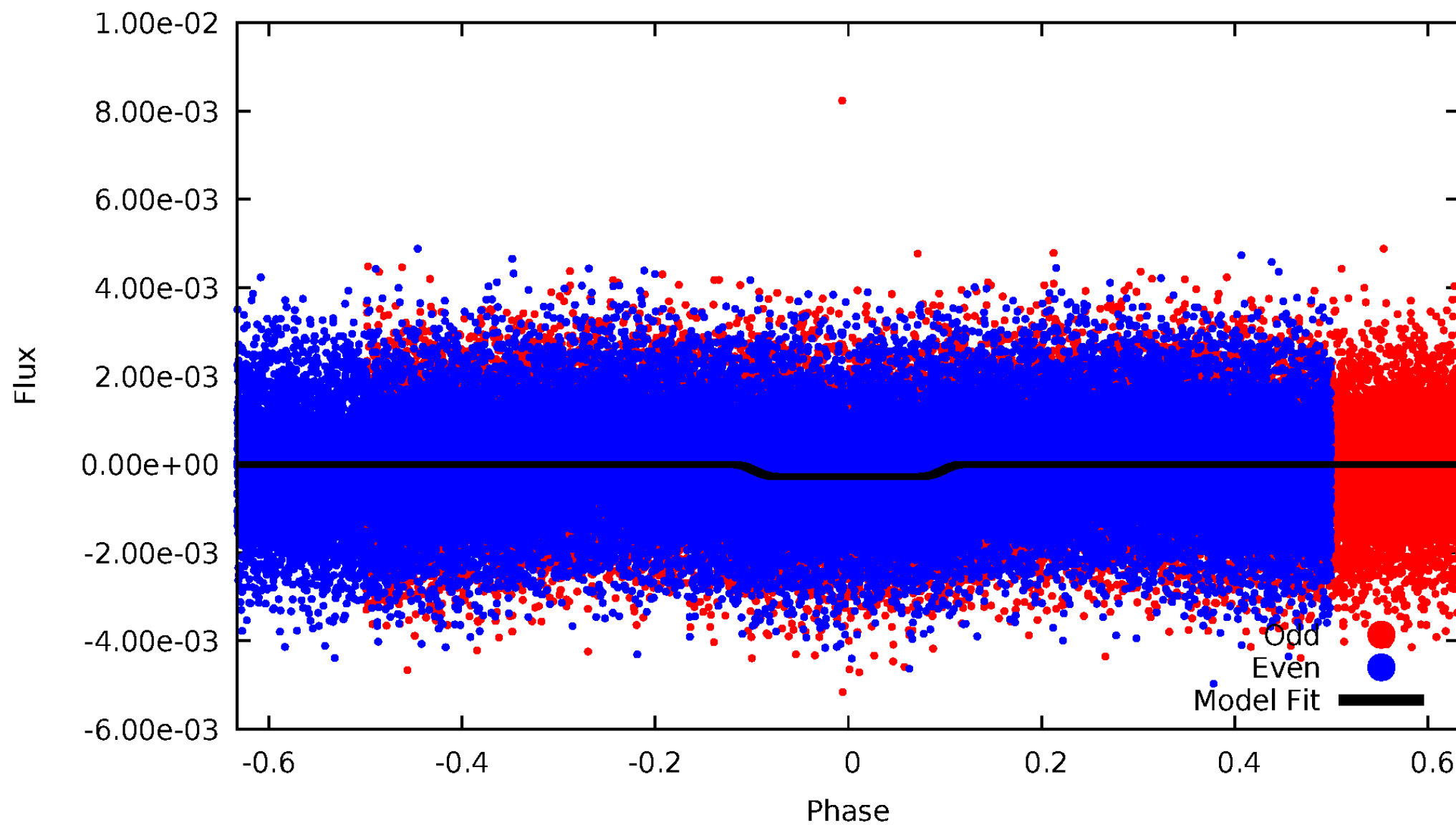
DV Odd/Even

TCE 005651181-01



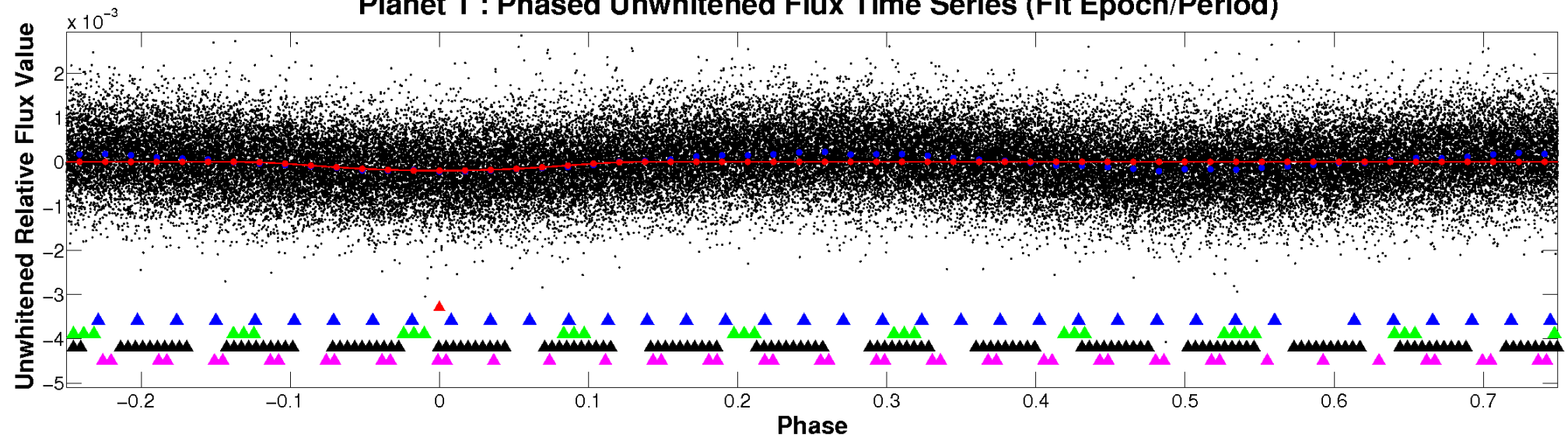
ALT Odd/Even

TCE 005651181-01

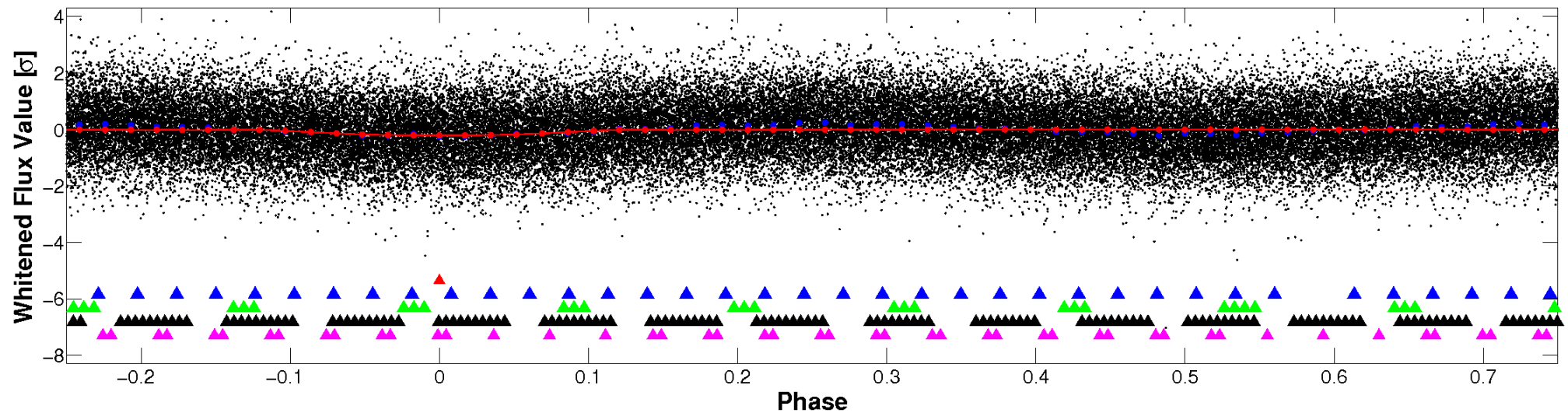


Non-Whitened Vs. Whitened Light Curve

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

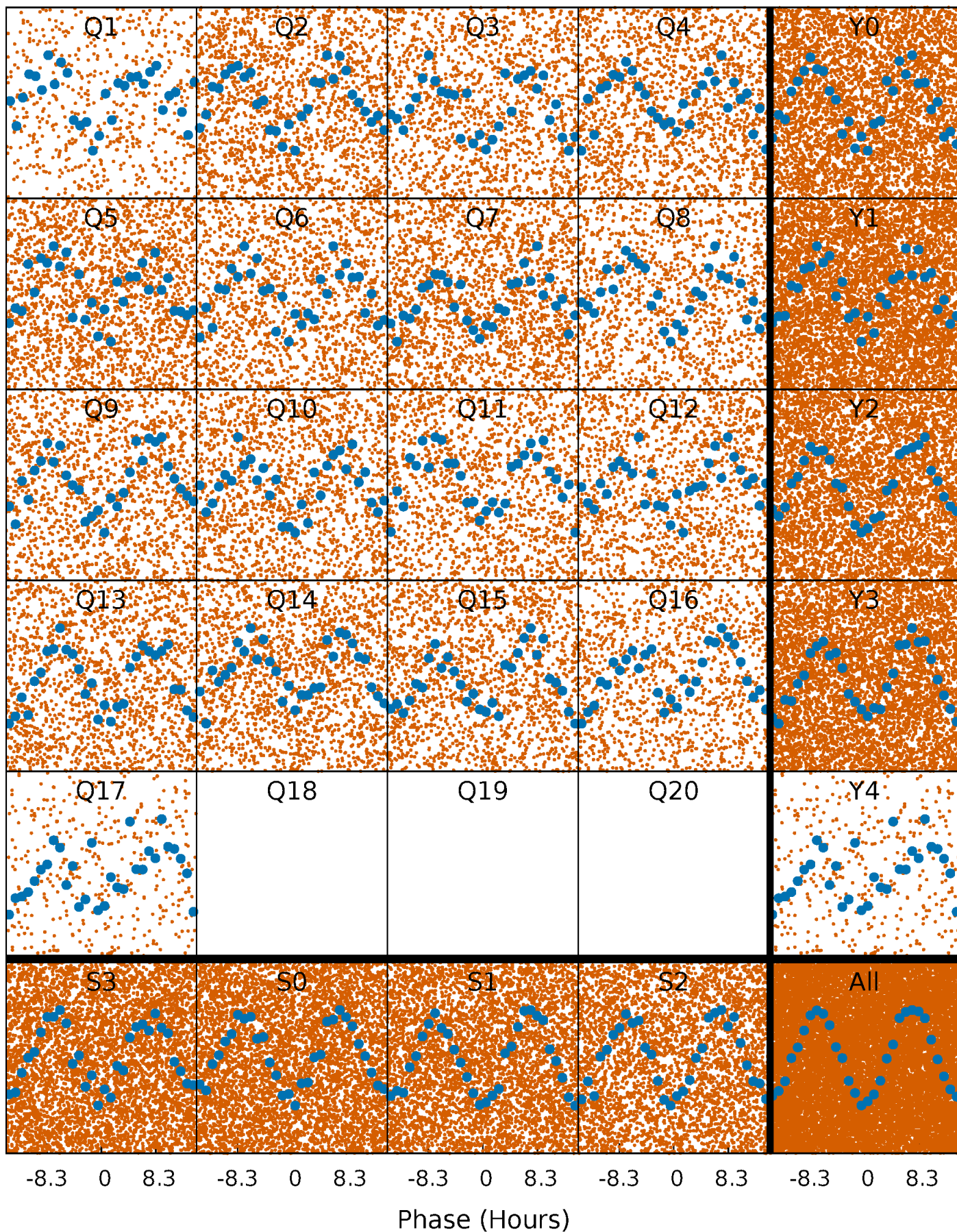


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



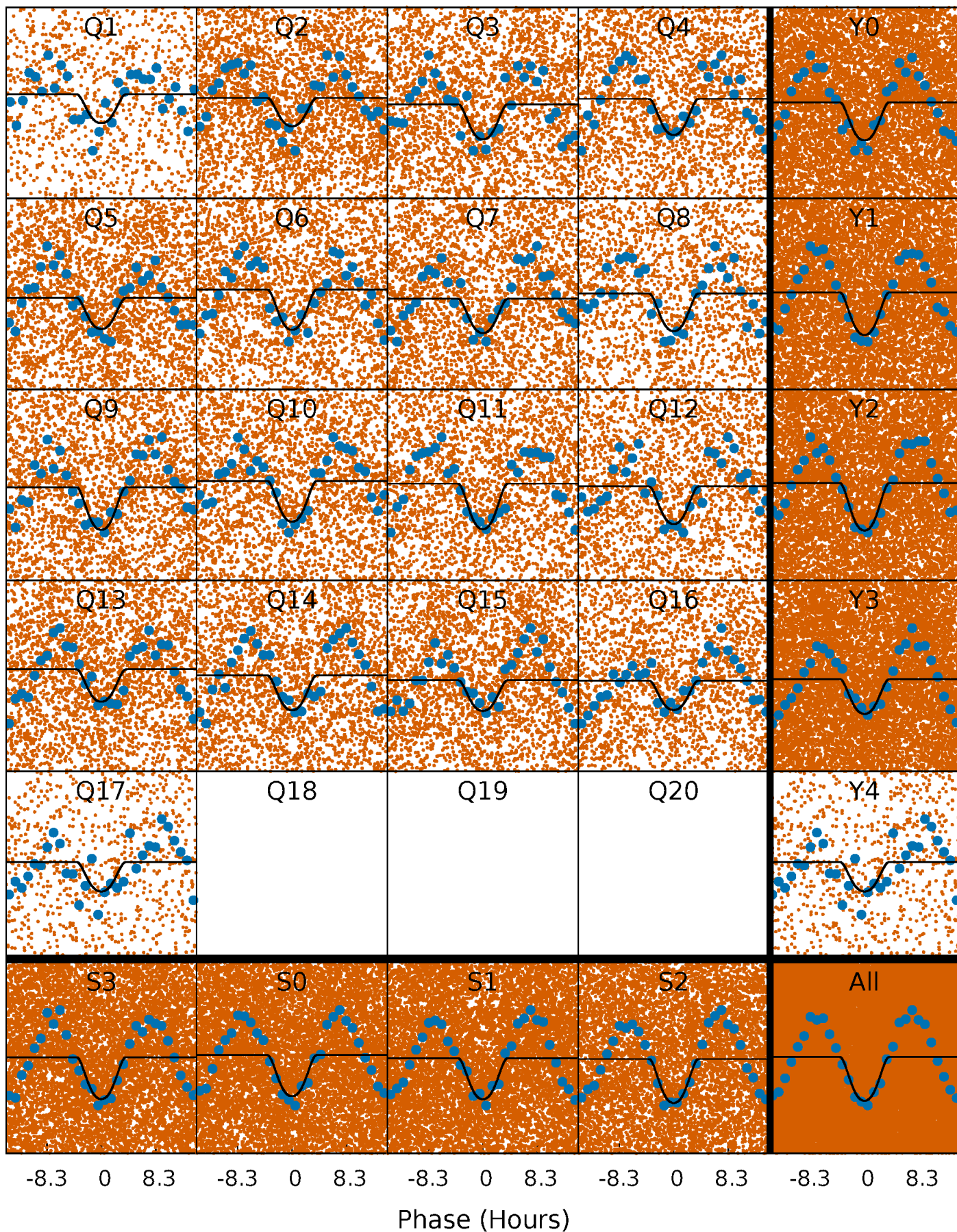
PDC Quarter-Phased Transit Curves

TCE 005651181-01 P= 1.185583 Days $T_0=131.814436$ (BKJD)



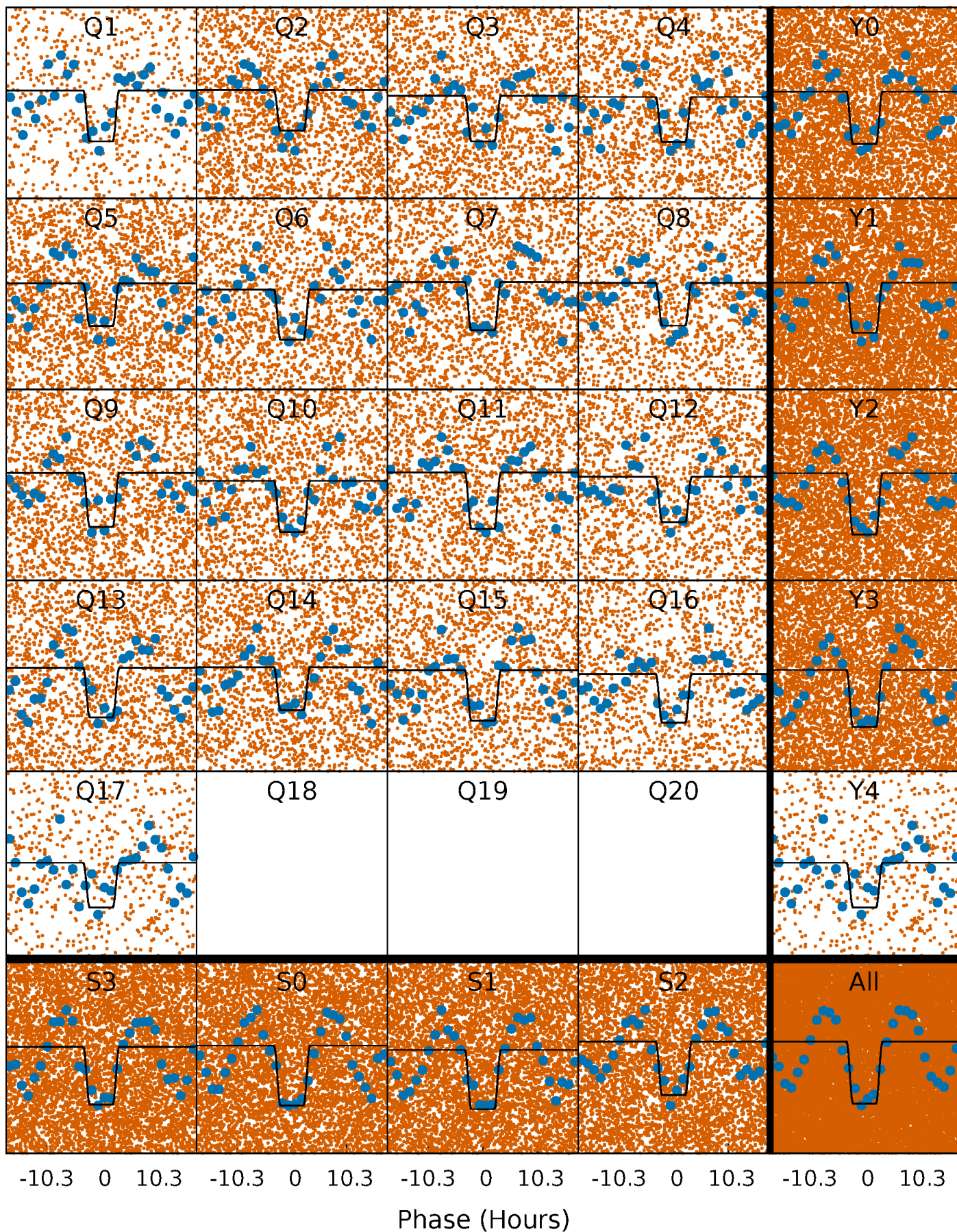
DV Quarter-Phased Transit Curves

TCE 005651181-01 P= 1.185583 Days $T_0=131.814436$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

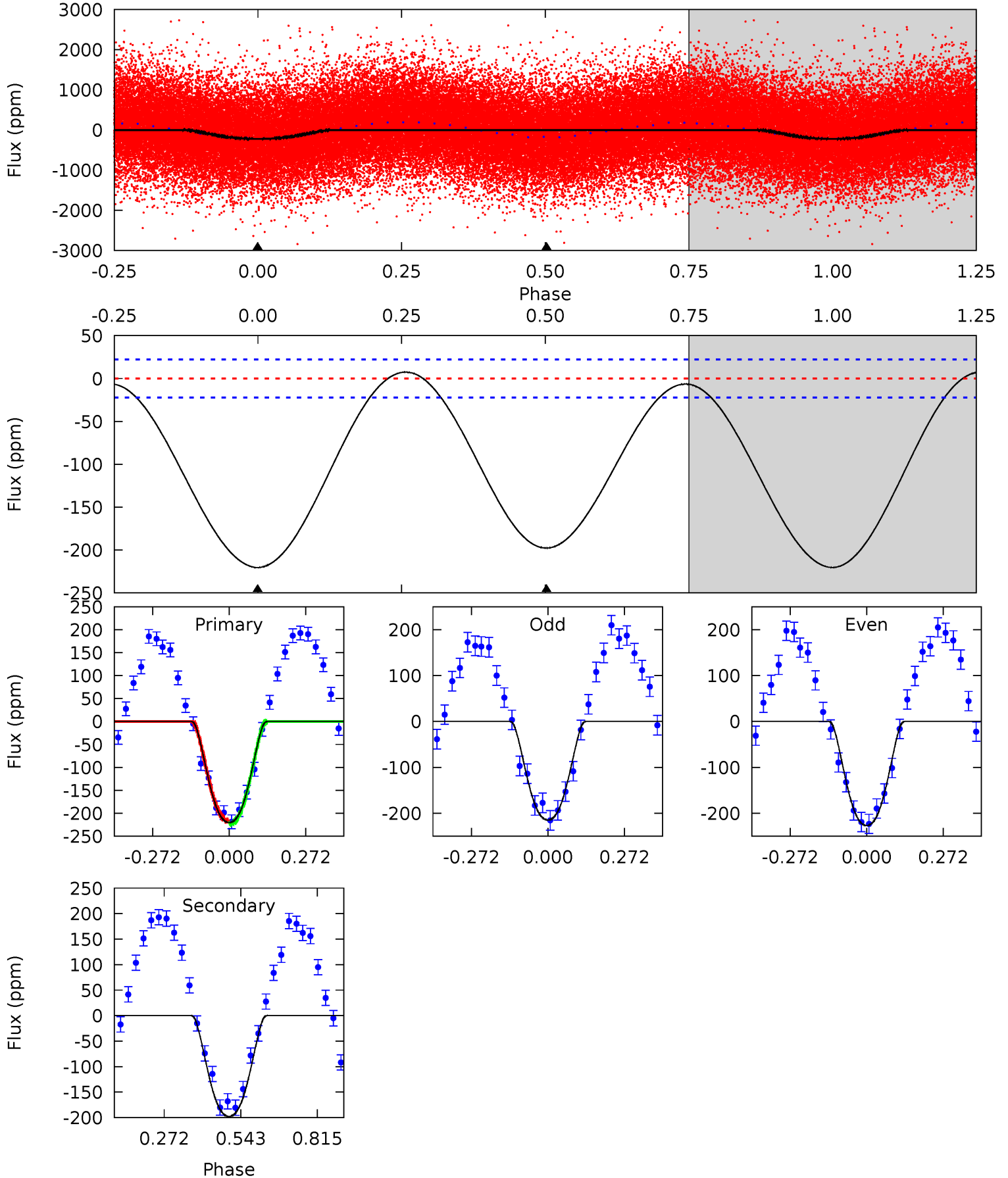
TCE 005651181-01 P= 1.185619 Days $T_0=131.792159$ (BKJD)



DV Model-Shift Uniqueness Test

005651181-01, P = 1.185583 Days, E = 130.628853 Days

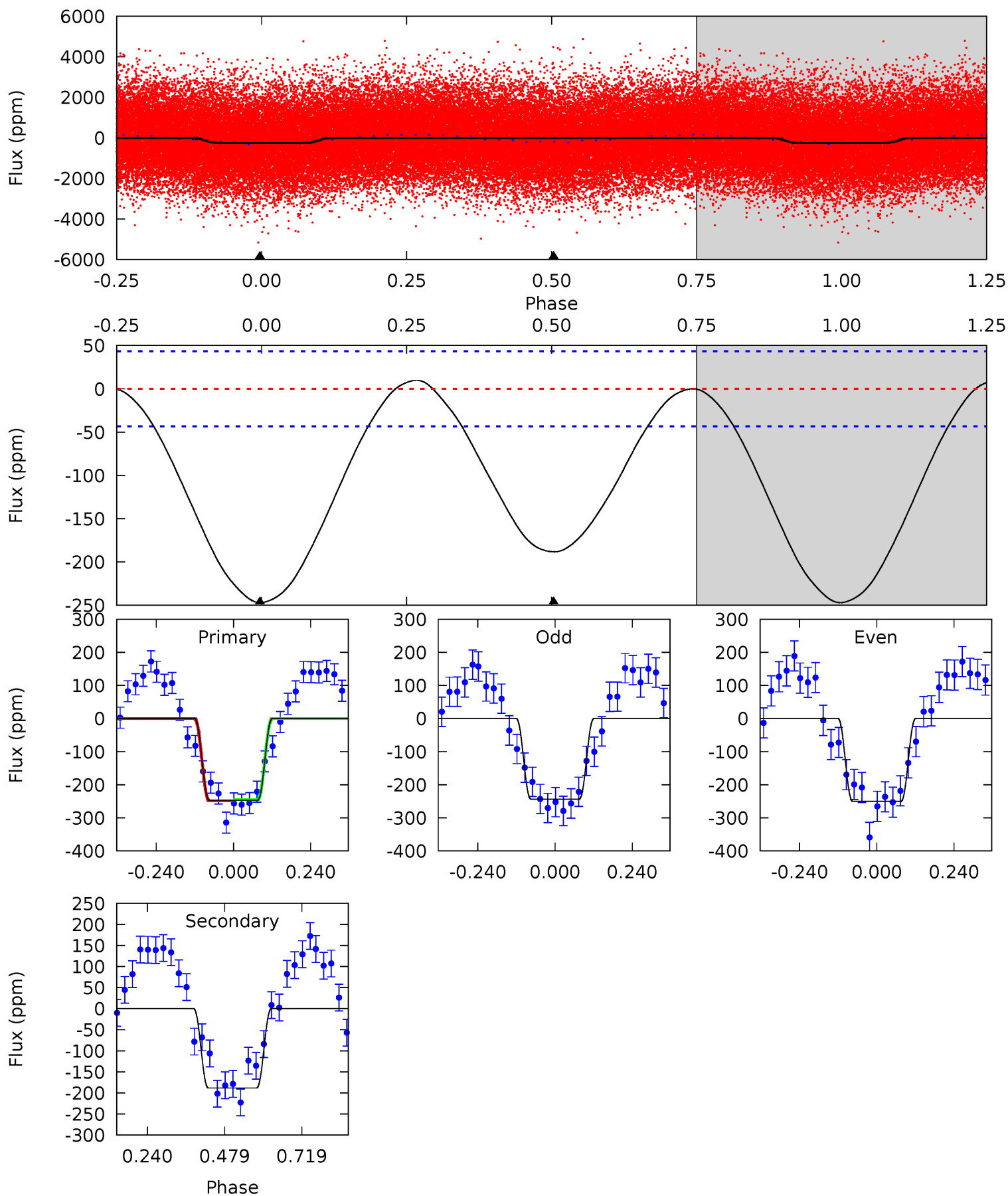
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
43.3	38.8	0	0	4.35	1.10	1.40	43.3	43.3	38.8	38.8	1.20	1.02	0.03	0.68



Alt Model-Shift Uniqueness Test

005651181-01, P = 1.185619 Days, E = 130.606540 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.9	19.0	0	0	4.38	1.18	0.54	24.9	24.9	19.0	19.0	0.35	1.10	0.04	0.19



Stellar Parameters For KIC 005651181

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8529^{+236}_{-371}	$3.769^{+0.385}_{-0.137}$	$-0.180^{+0.400}_{-0.350}$	$3.065^{+1.017}_{-1.356}$	$2.017^{+0.437}_{-0.437}$	$0.099^{+0.333}_{-0.046}$
	+3%/-4%	+10%/-4%	+222%/-194%	+33%/-44%	+22%/-22%	+337%/-47%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005651181-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-198 ± 5	$5.45^{+1.46}_{-1.30}$	5370^{+457}_{-580}	7238^{+793}_{-676}	$2.801^{+1.995}_{-0.946}$
Alt.	-188 ± 10	$5.24^{+1.37}_{-1.37}$	5327^{+502}_{-584}	7258^{+894}_{-667}	$2.941^{+2.137}_{-1.035}$

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

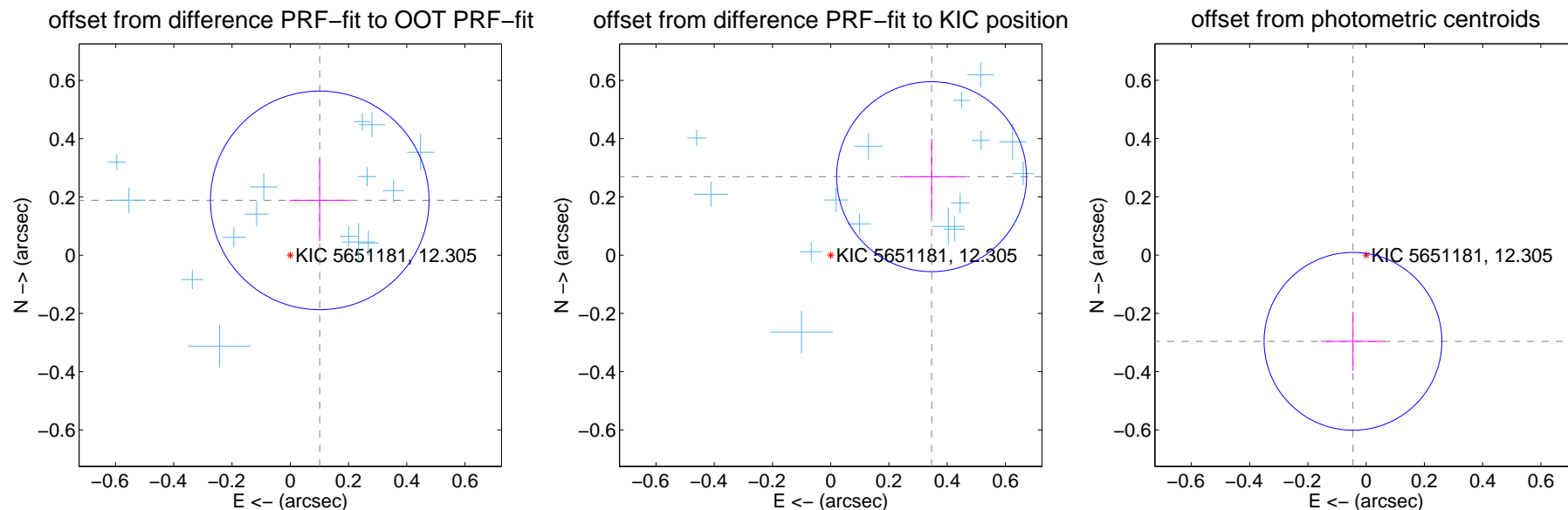
DV Centroid Data

Supplemental centroid analysis for 005651181-01. Kepler magnitude: 12.30. Transit SNR 18.62

There are 17 quarters with good PRF difference image offsets

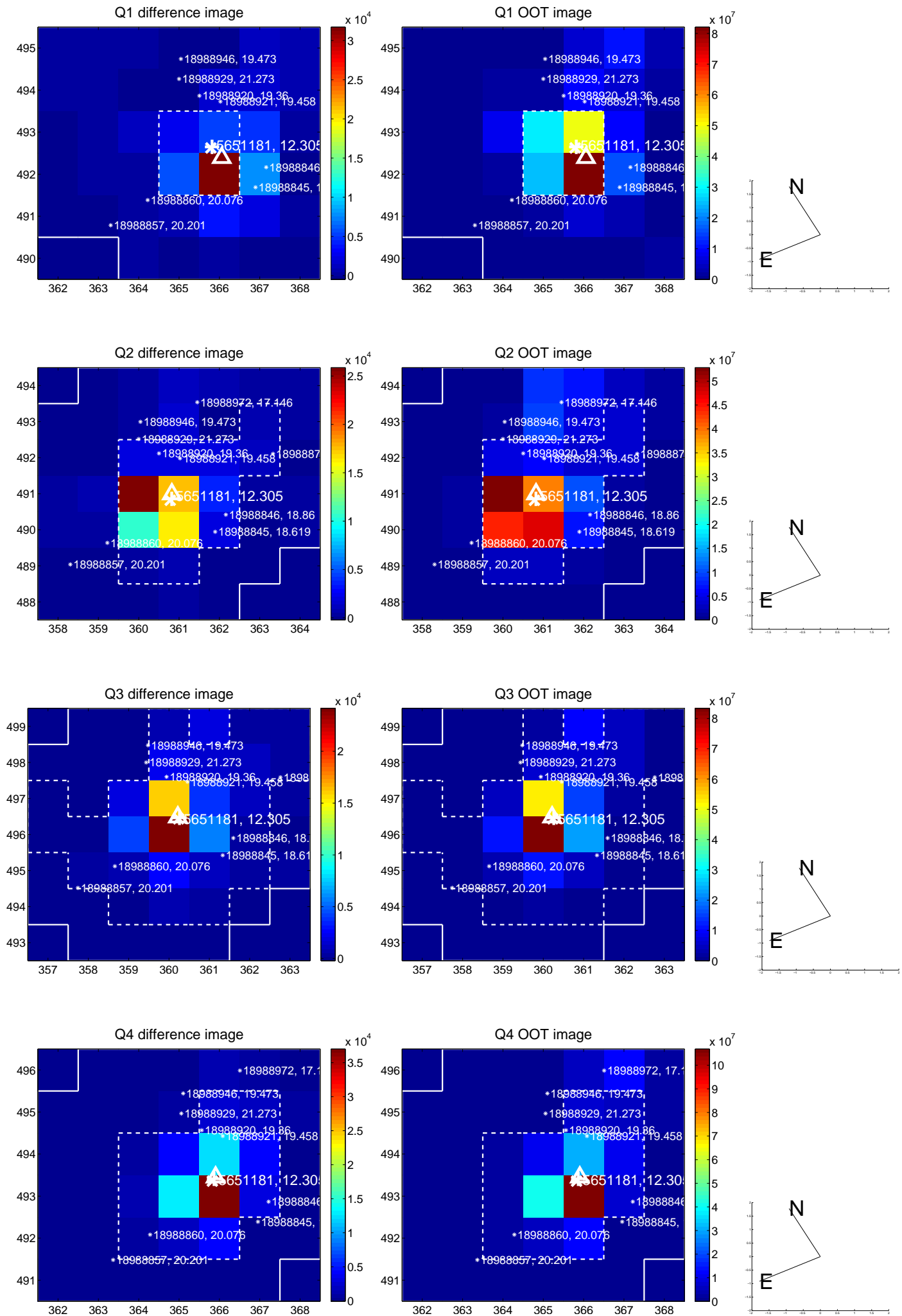
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.214 ± 0.125	1.71	-0.101 ± 0.104	0.188 ± 0.141
PRF-fit source offset from KIC position	0.439 ± 0.109	4.04	-0.346 ± 0.112	0.269 ± 0.131
photometric centroid source offset	0.30 ± 0.10	2.94	0.05 ± 0.11	-0.30 ± 0.10

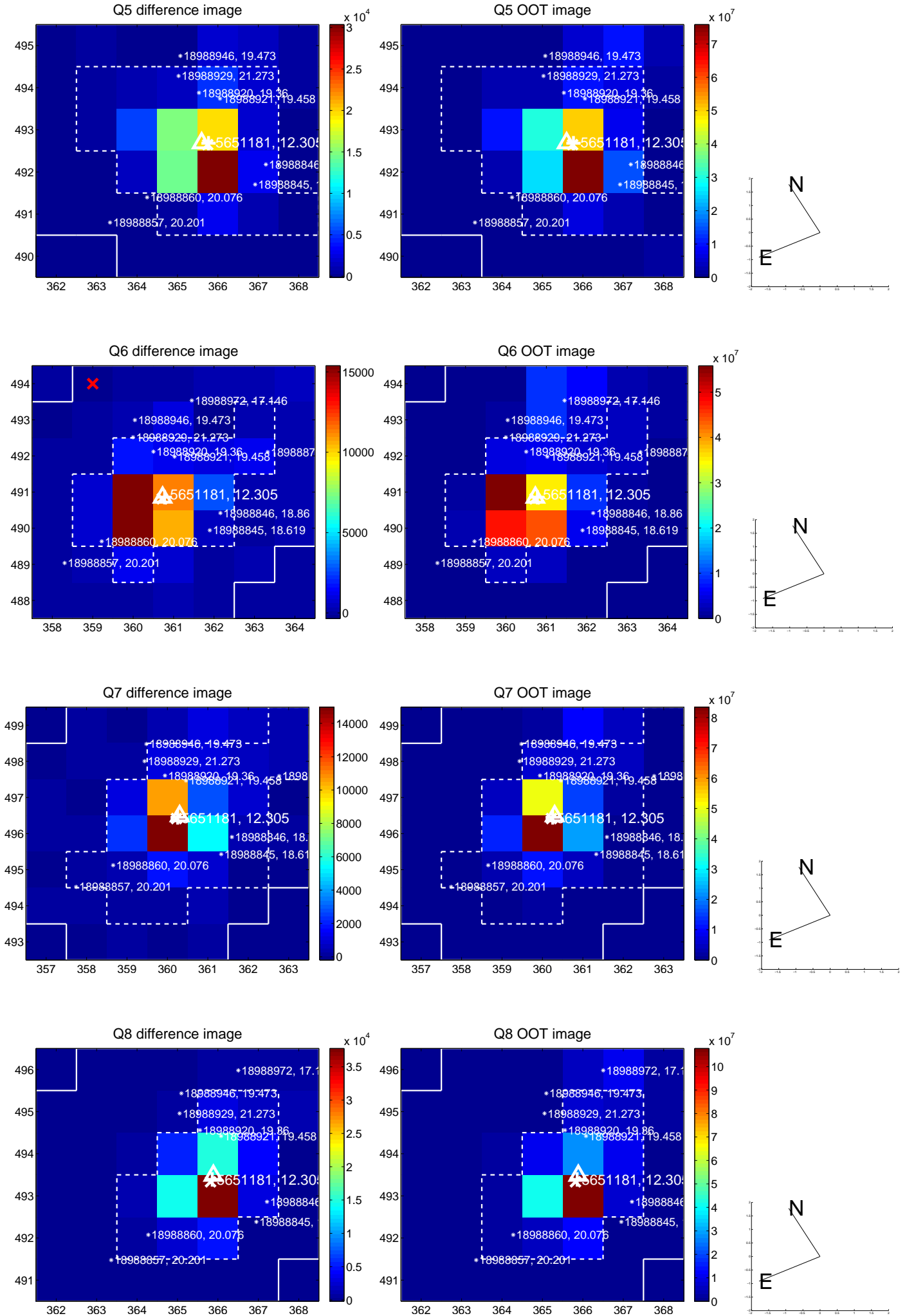


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

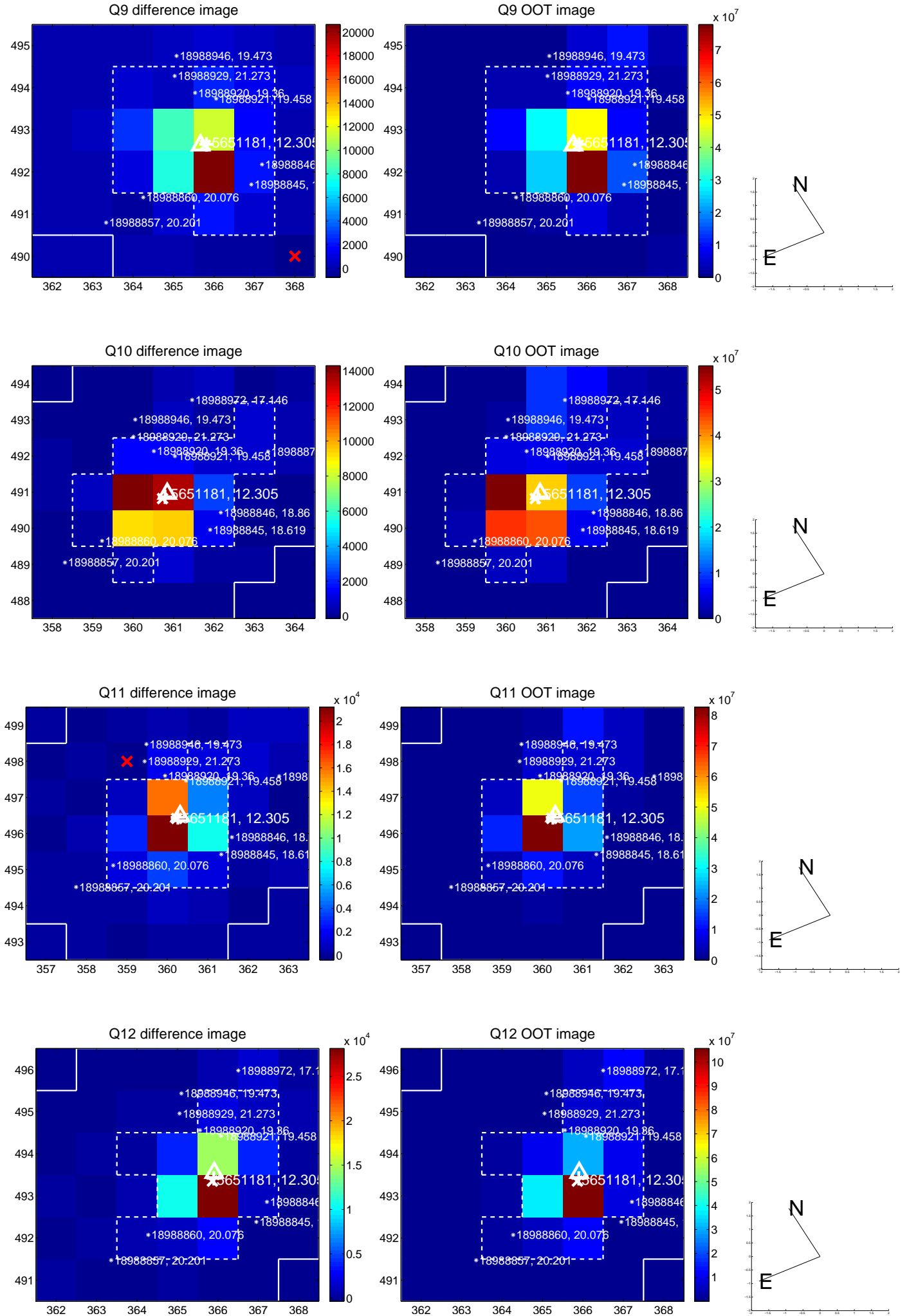
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



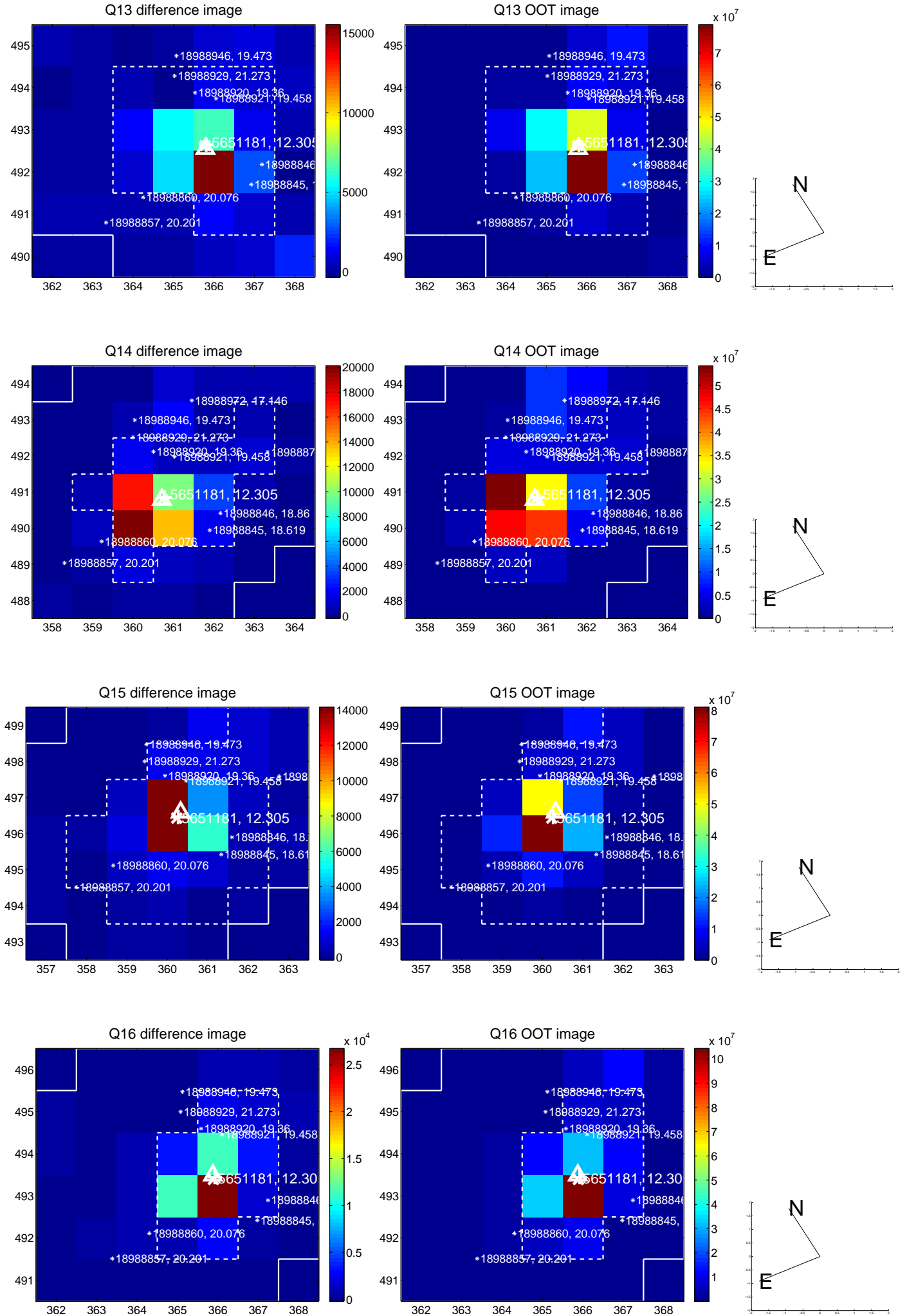
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



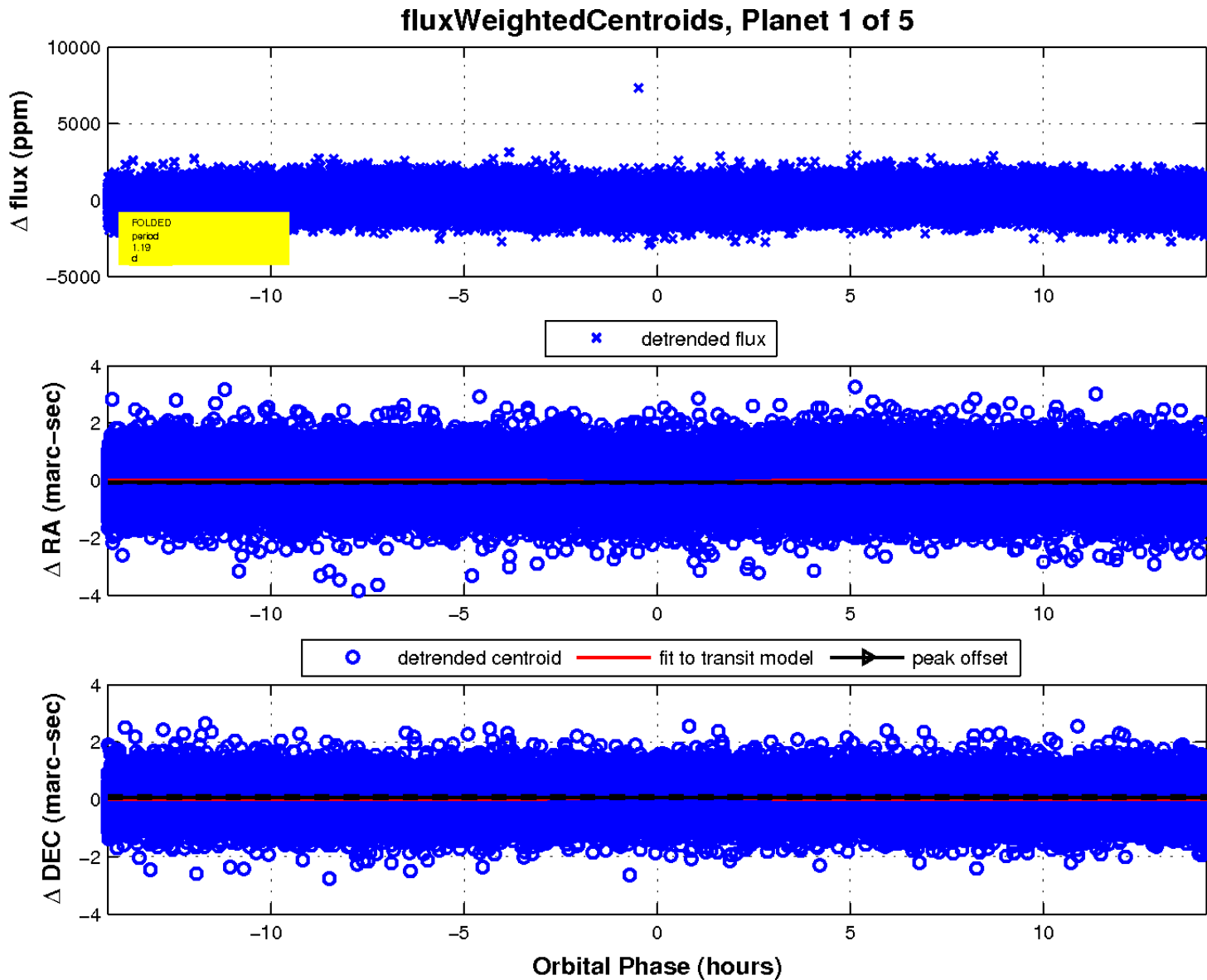
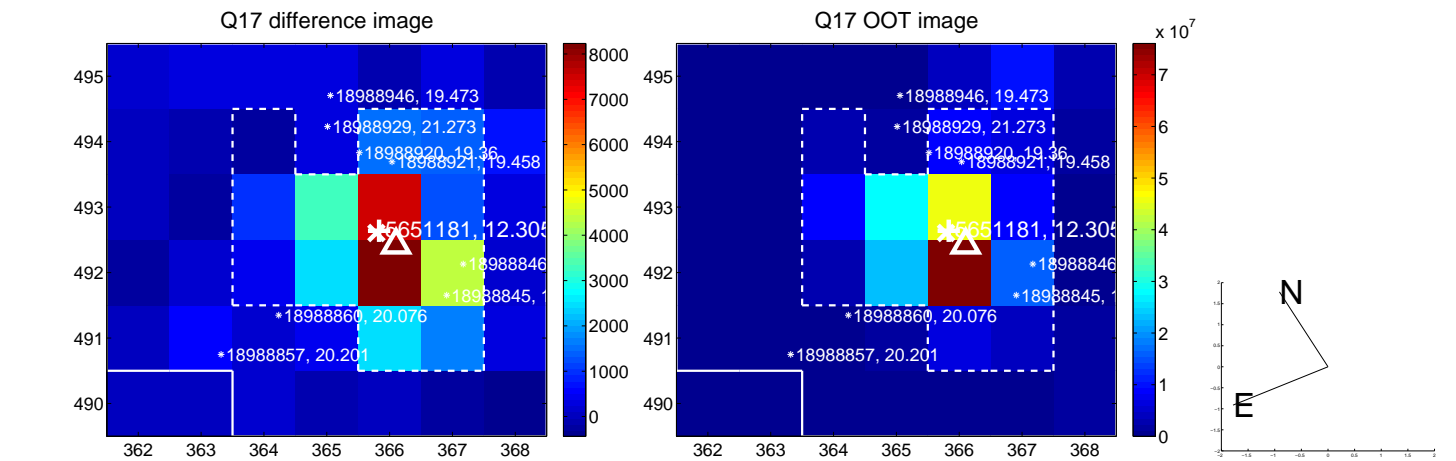
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

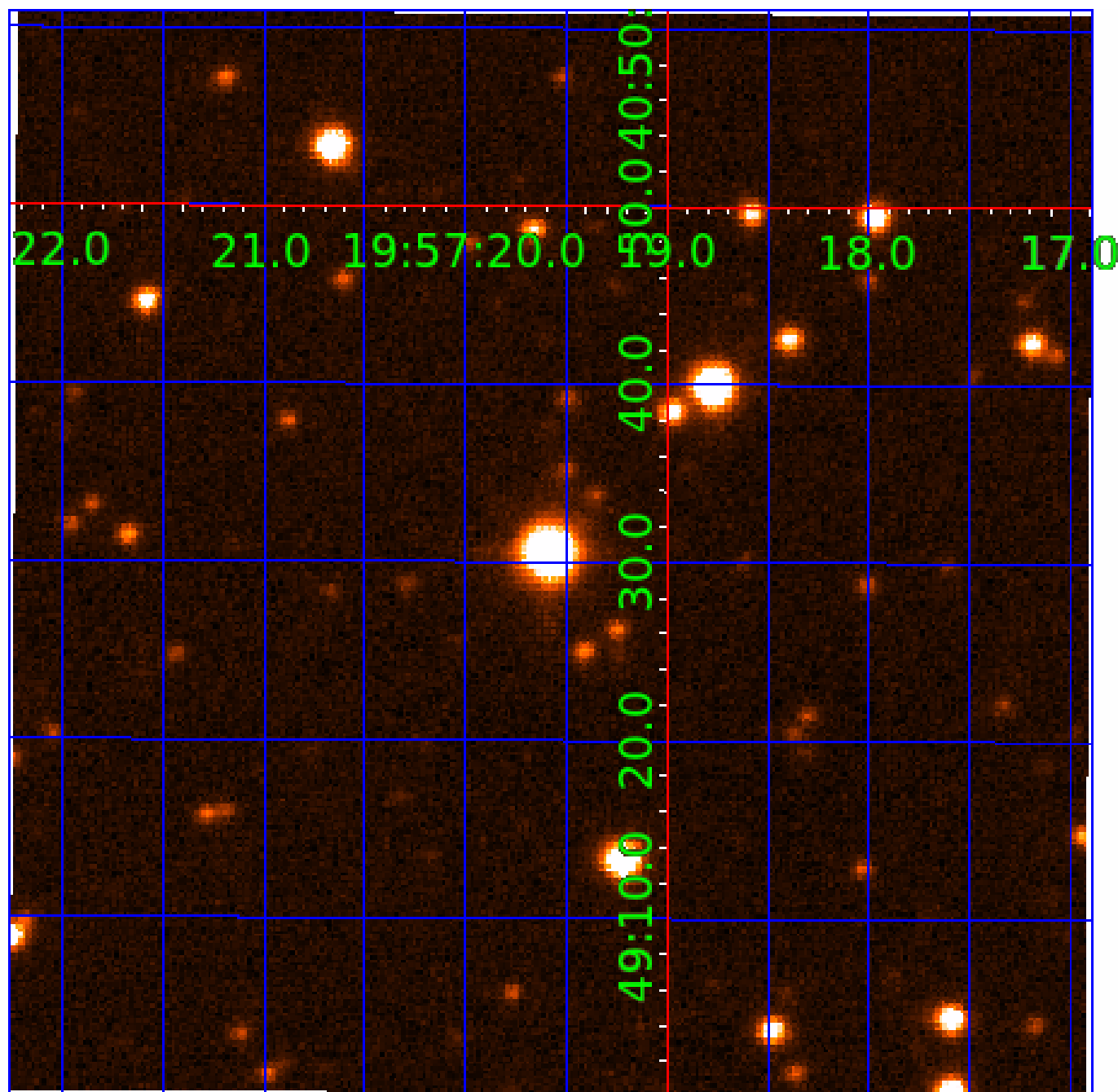


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005651181

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})
005651181-01	OBS	No	1.185583	131.814436	197.7	7.276	16.1	18.6	3.06	8529	5.75	58102.92
005651181-02	OBS	No	39.093056	147.891065	1054.2	1.960	10.3	9.3	3.06	8529	11.35	549.51
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005651181-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005651181-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005651181-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005651181-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005651181-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

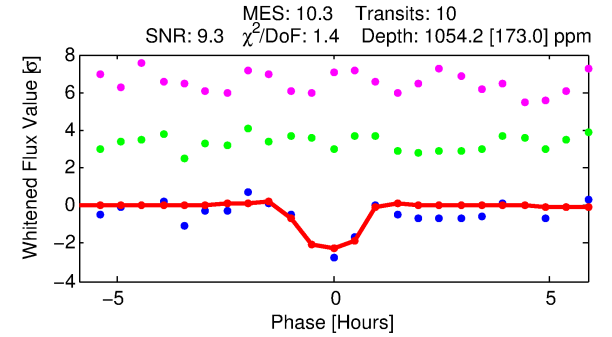
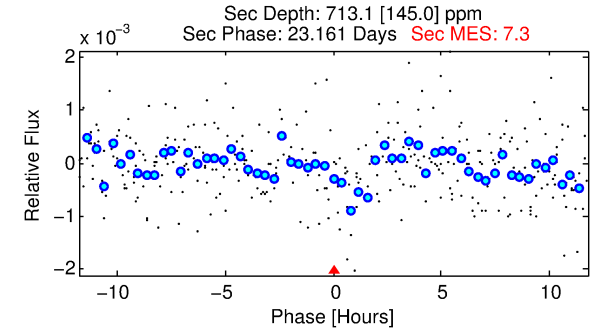
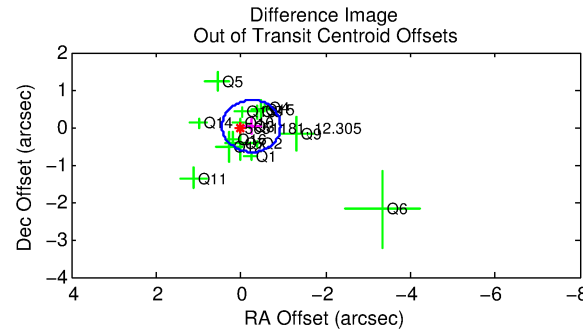
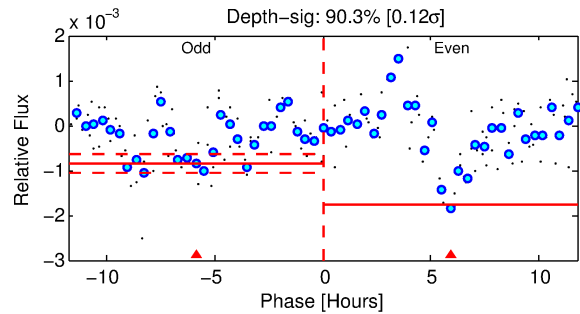
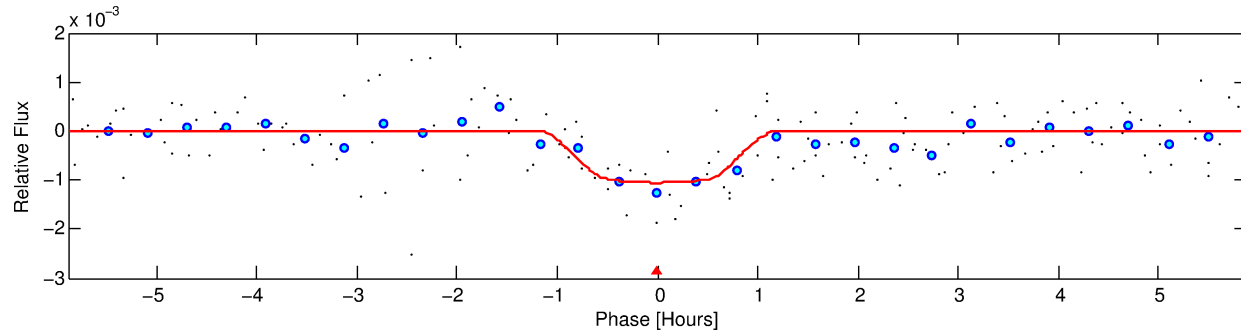
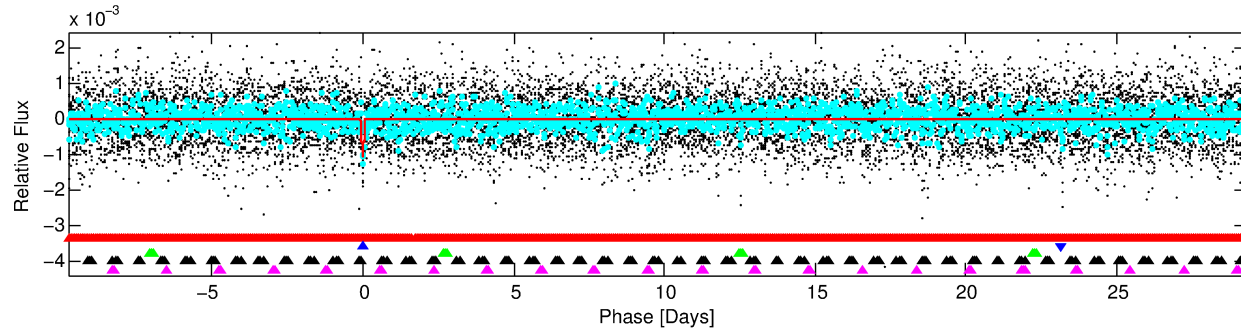
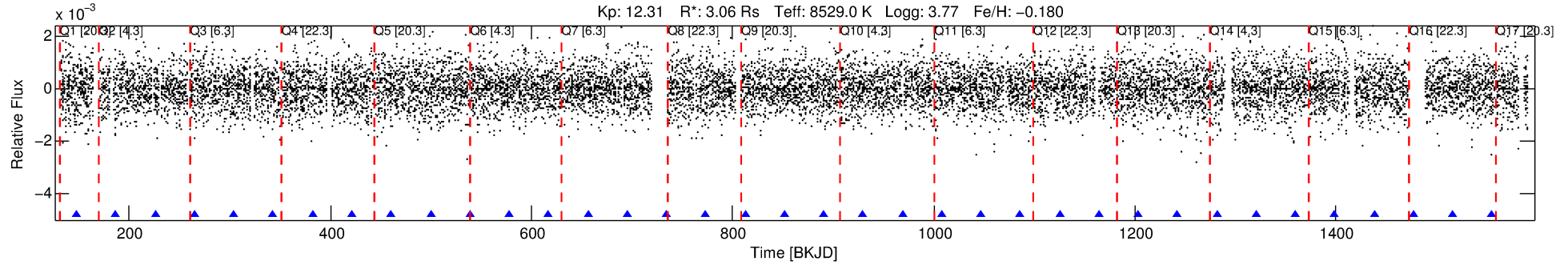
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005651181-02

No Significant Match Found

DV One-Page Summary

KIC: 5651181 Candidate: 2 of 5 Period: 39.093 d



DV Fit Results:

Period = 39.09306 [0.00033] d
Epoch = 147.8911 [0.0039] BKJD
Rp/R* = 0.0339 [0.0151]
a/R* = 85.08 [224.27]
b = 0.87 [0.75]
Seff = 549.51 [375.34]
Teq = 1235 [211] K
Rp = 11.35 [7.11] Re
a = 0.2847 [0.1189] AU
Ag = 246.81 [277.71] [0.89 σ]
Teffp = 7566 [1754] K [3.58 σ]

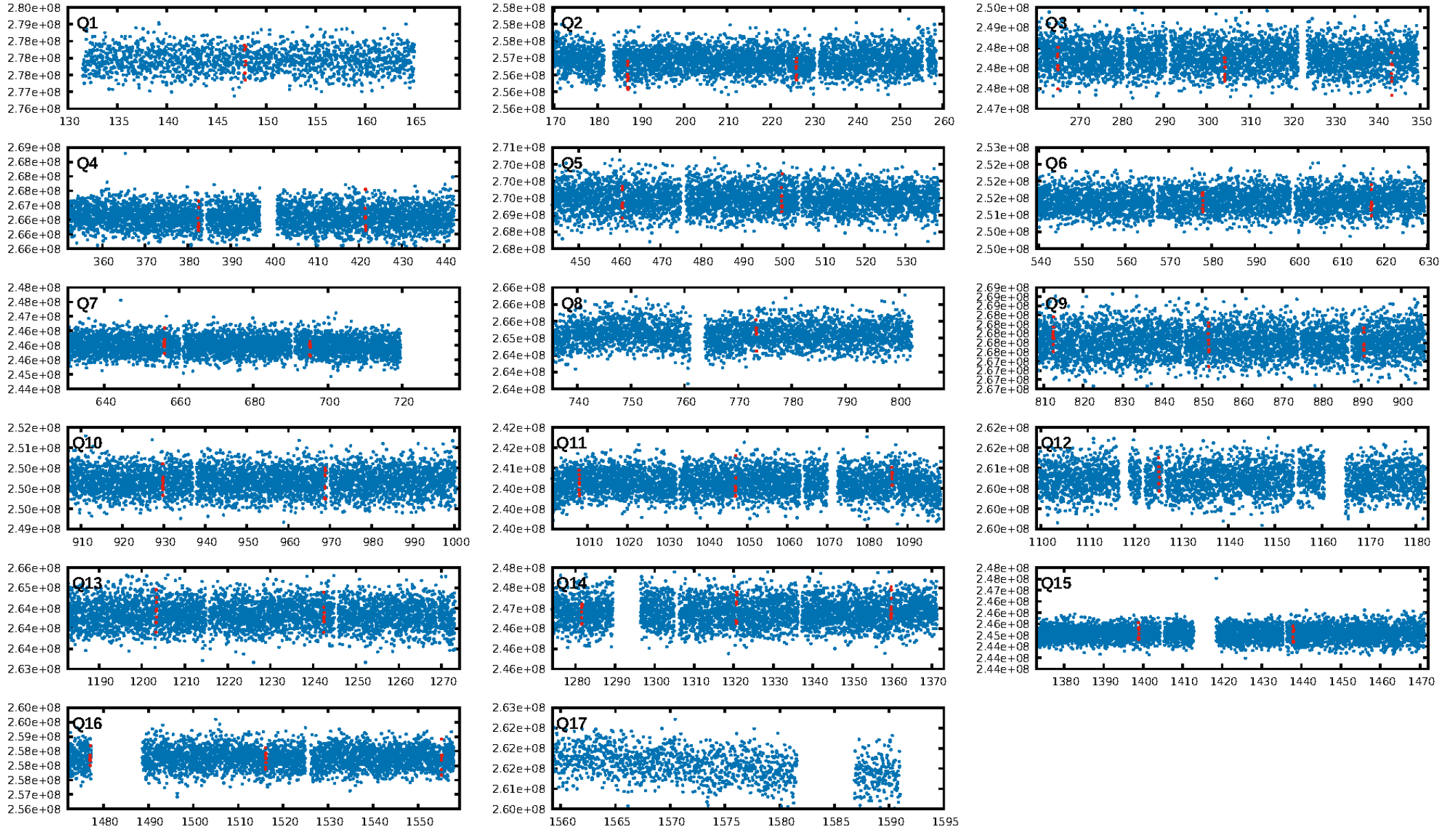
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [59.49 σ]
LongPeriod-sig: 100.0% [81.23 σ]
ModelChiSquare2-sig: 30.3%
ModelChiSquareGof-sig: 98.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 1.308
Centroid-sig: 42.6%
Centroid-so: 0.194 arcsec [1.07 σ]
OotOffset-rm: 0.251 arcsec [1.09 σ]
KicOffset-rm: 0.451 arcsec [1.85 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.44 [7/16]
DiffImageOverlap-fno: 0.38 [6/16]

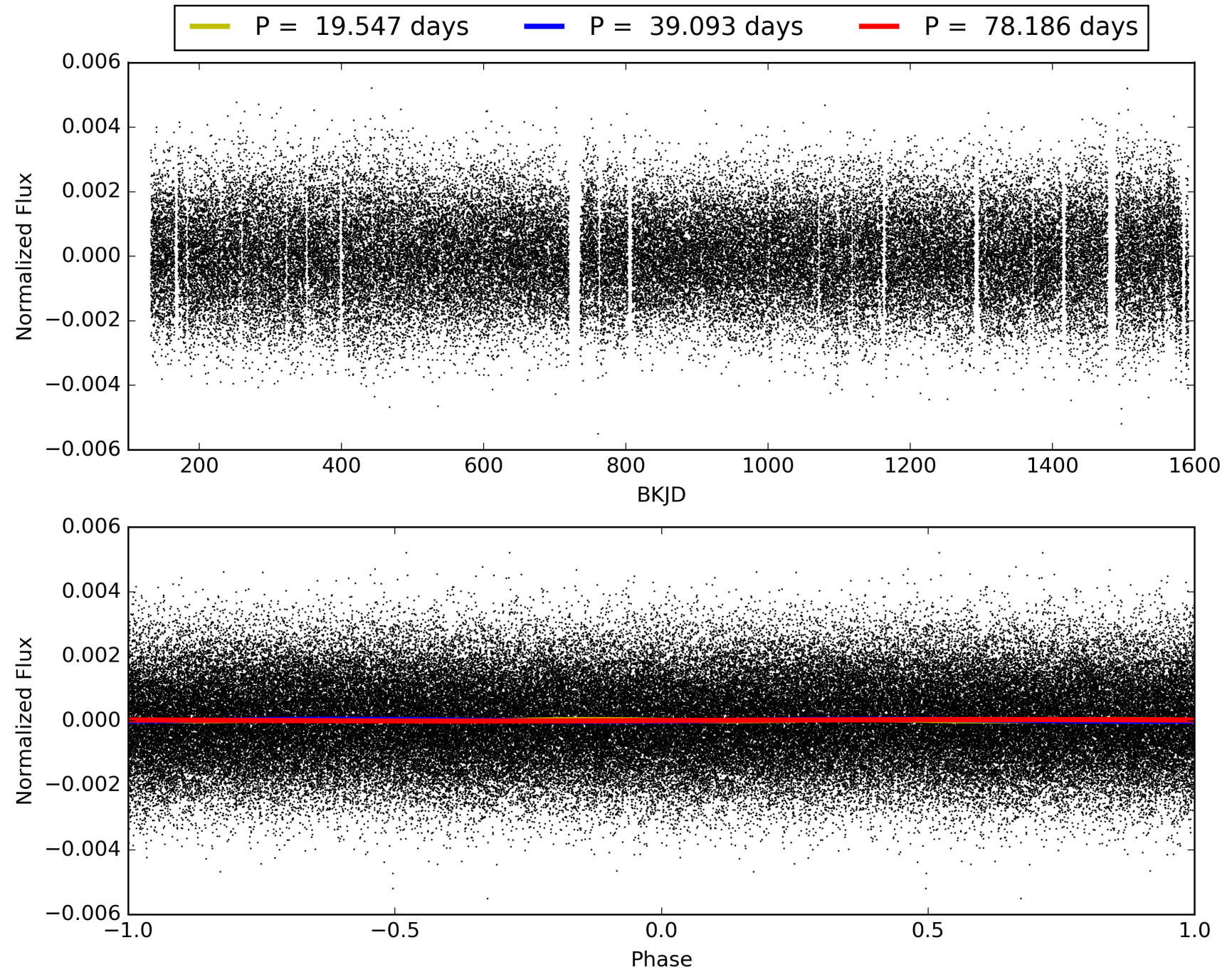
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:58:47 Z

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

TCE 005651181-02, PDC Light Curves

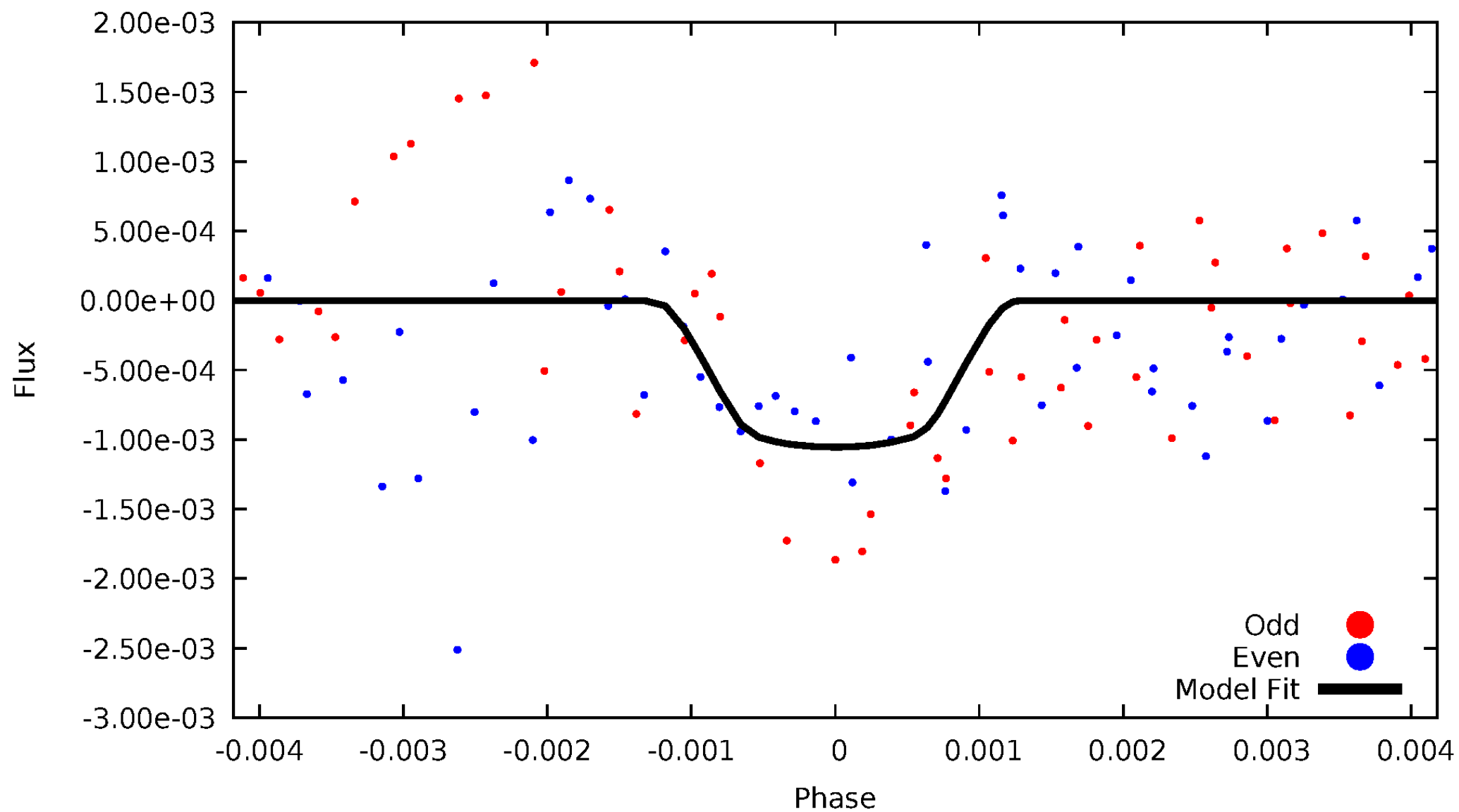


TCE 005651181-02



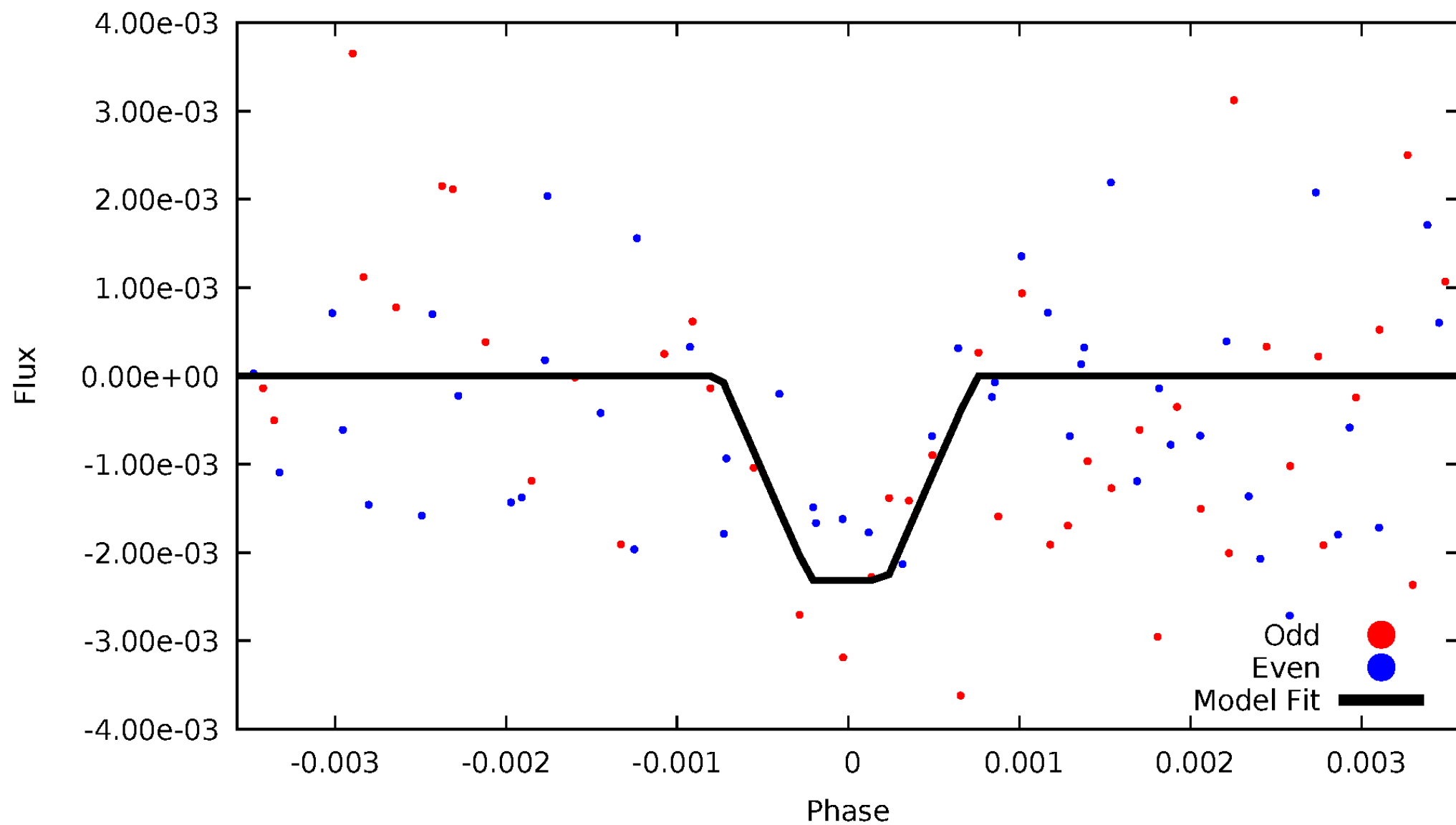
DV Odd/Even

TCE 005651181-02



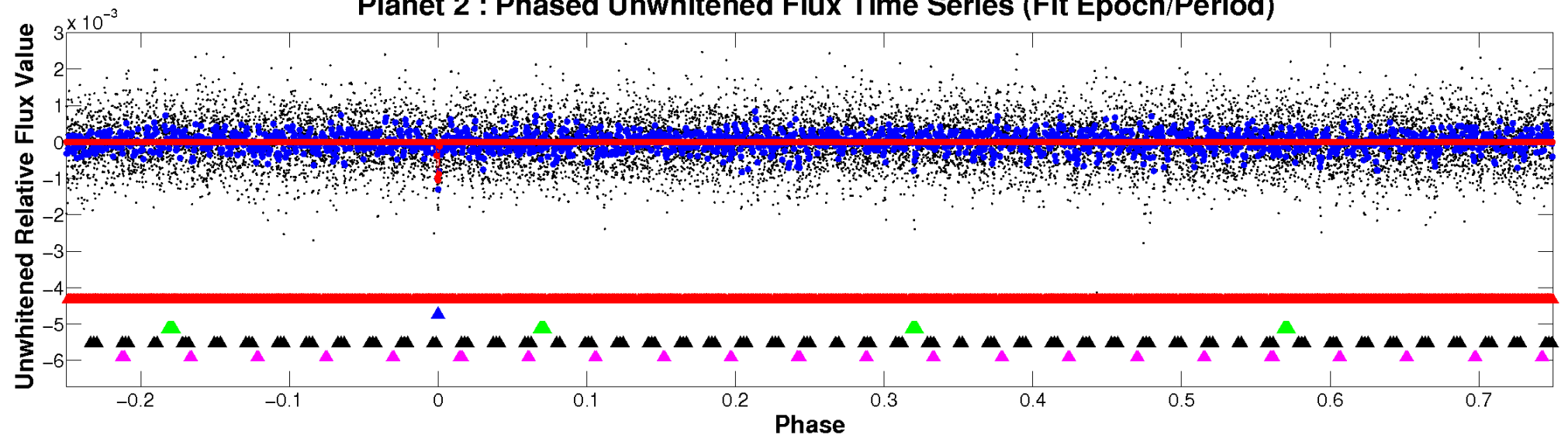
ALT Odd/Even

TCE 005651181-02

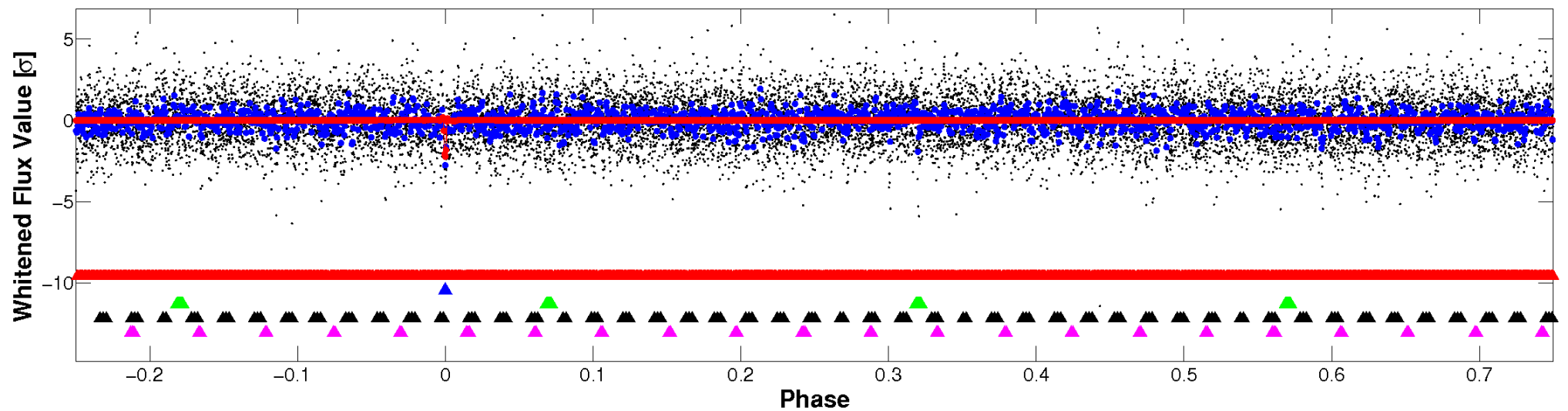


Non-Whitened Vs. Whitened Light Curve

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

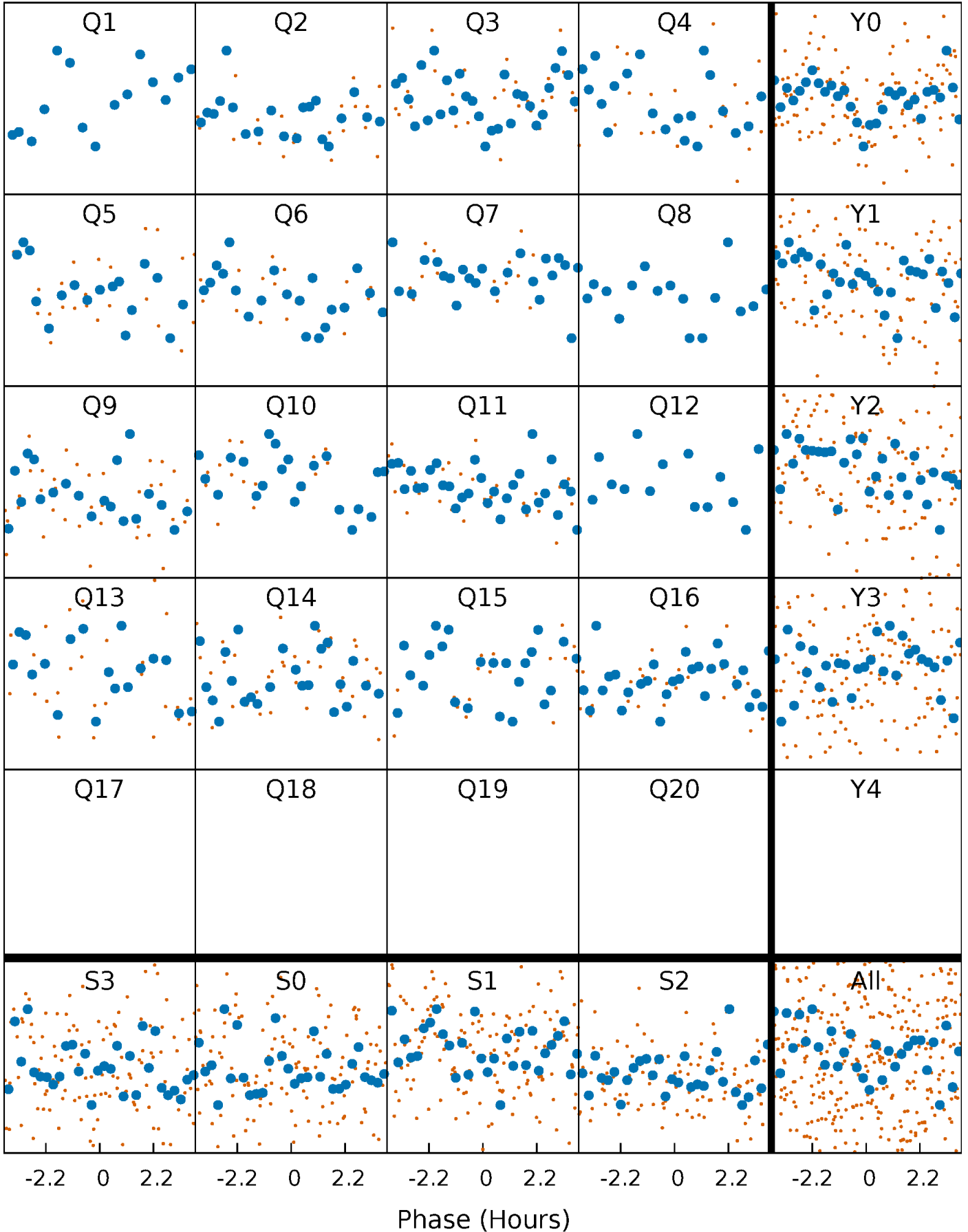


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



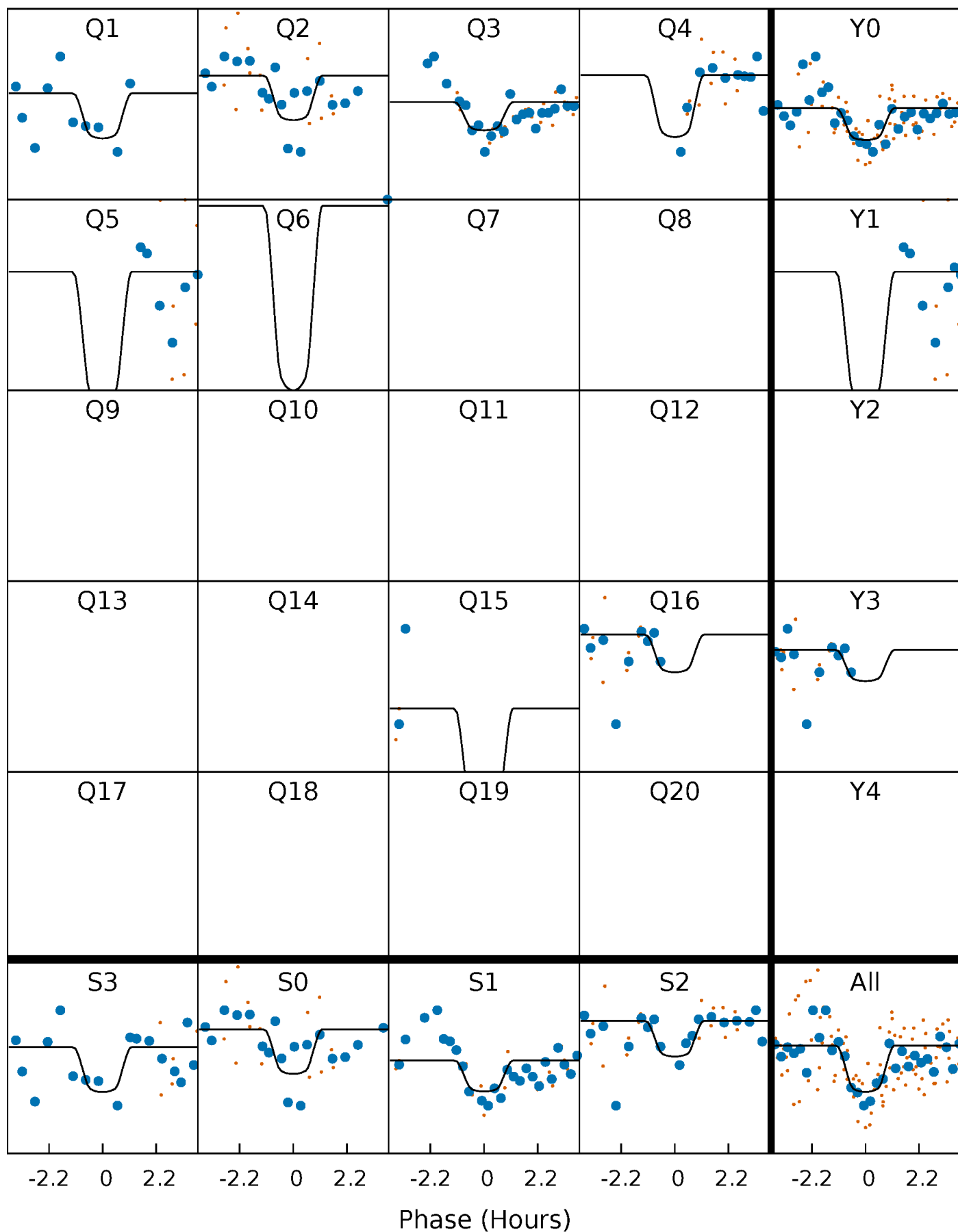
PDC Quarter-Phased Transit Curves

TCE 005651181-02 P= 39.093056 Days $T_0=147.891065$ (BKJD)



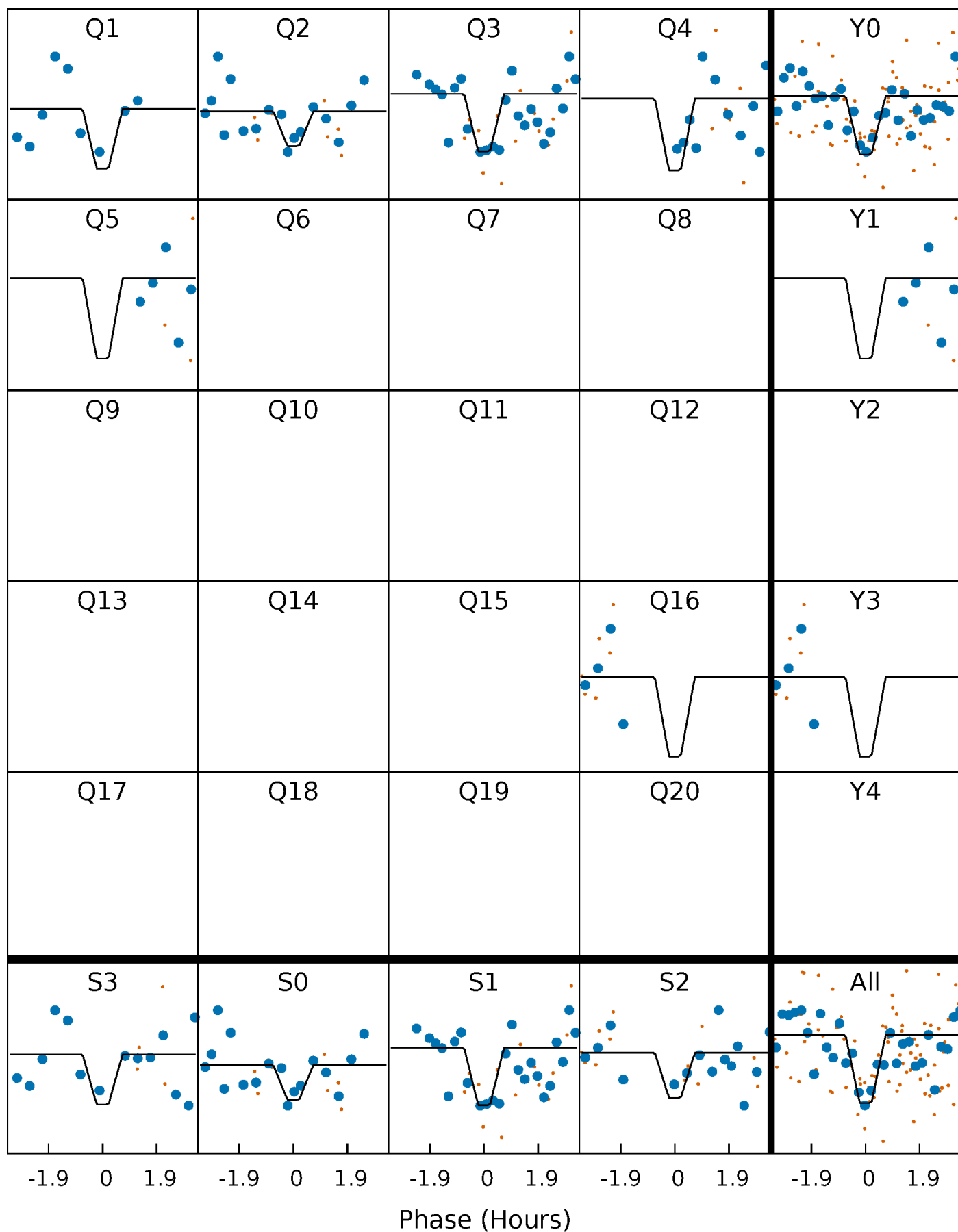
DV Quarter-Phased Transit Curves

TCE 005651181-02 P= 39.093056 Days $T_0=147.891065$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

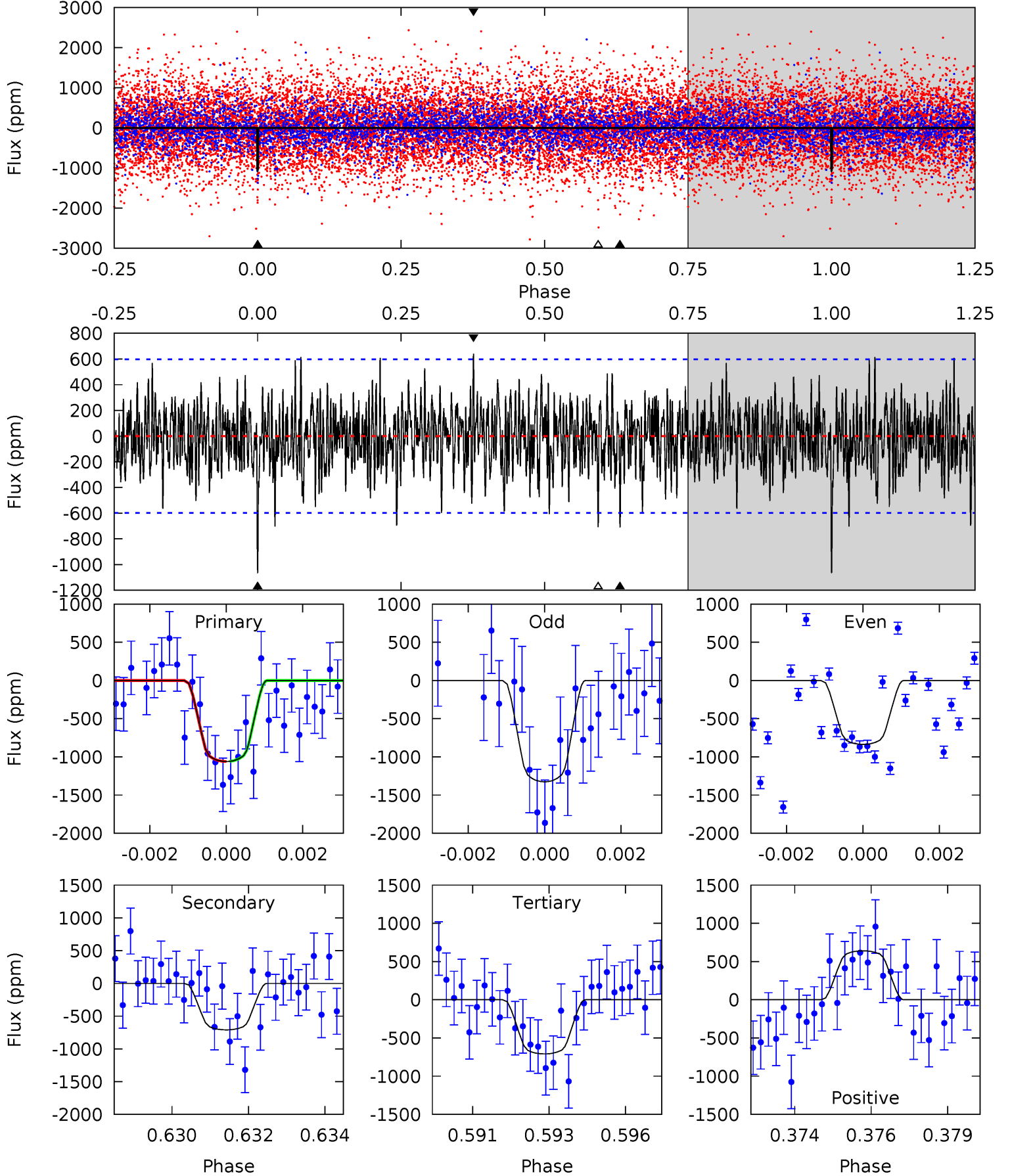
TCE 005651181-02 P= 39.094652 Days $T_0=147.887456$ (BKJD)



DV Model-Shift Uniqueness Test

005651181-02, P = 39.093056 Days, E = 108.798009 Days

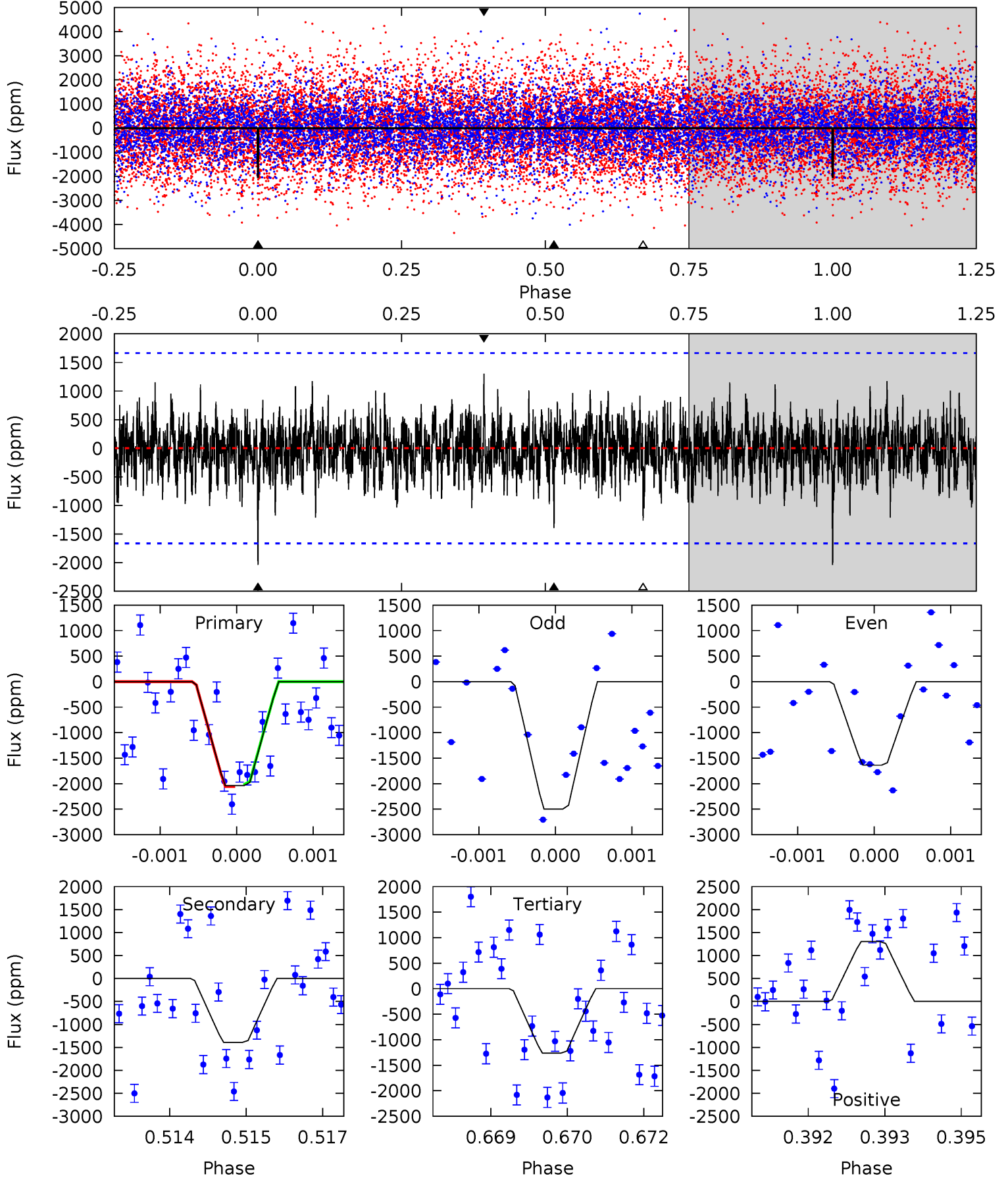
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.40	6.29	6.28	5.68	5.29	3.03	1.81	3.12	3.72	0.01	0.61	2.17	0.98	0.38	0.01



Alt Model-Shift Uniqueness Test

005651181-02, P = 39.094652 Days, E = 108.792804 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	4.51	4.09	4.22	5.39	3.20	1.16	2.52	2.38	0.42	0.29	1.39	1.05	0.39	0.06



Stellar Parameters For KIC 005651181

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8529^{+236}_{-371}	$3.769^{+0.385}_{-0.137}$	$-0.180^{+0.400}_{-0.350}$	$3.065^{+1.017}_{-1.356}$	$2.017^{+0.437}_{-0.437}$	$0.099^{+0.333}_{-0.046}$
	+3%/-4%	+10%/-4%	+222%/-194%	+33%/-44%	+22%/-22%	+337%/-47%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005651181-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-710 ± 113	$10.21^{+5.50}_{-4.56}$	1669^{+142}_{-183}	7459^{+3302}_{-1478}	305^{+709}_{-177}
Alt.	-1391 ± 308	$15.23^{+6.26}_{-6.05}$	1671^{+145}_{-190}	7154^{+2205}_{-1075}	272^{+441}_{-144}

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 $A_{obs} \gg 1.0$

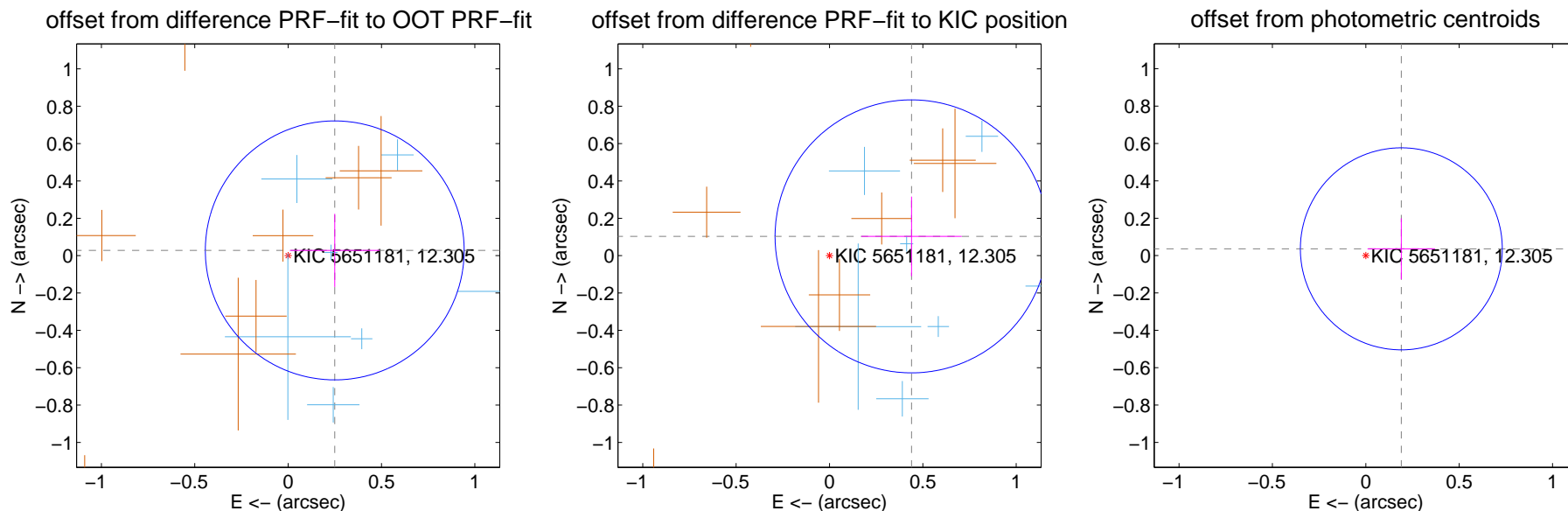
DV Centroid Data

Supplemental centroid analysis for 005651181-02. Kepler magnitude: 12.30. Transit SNR 9.31

There are 7 quarters with good PRF difference image offsets

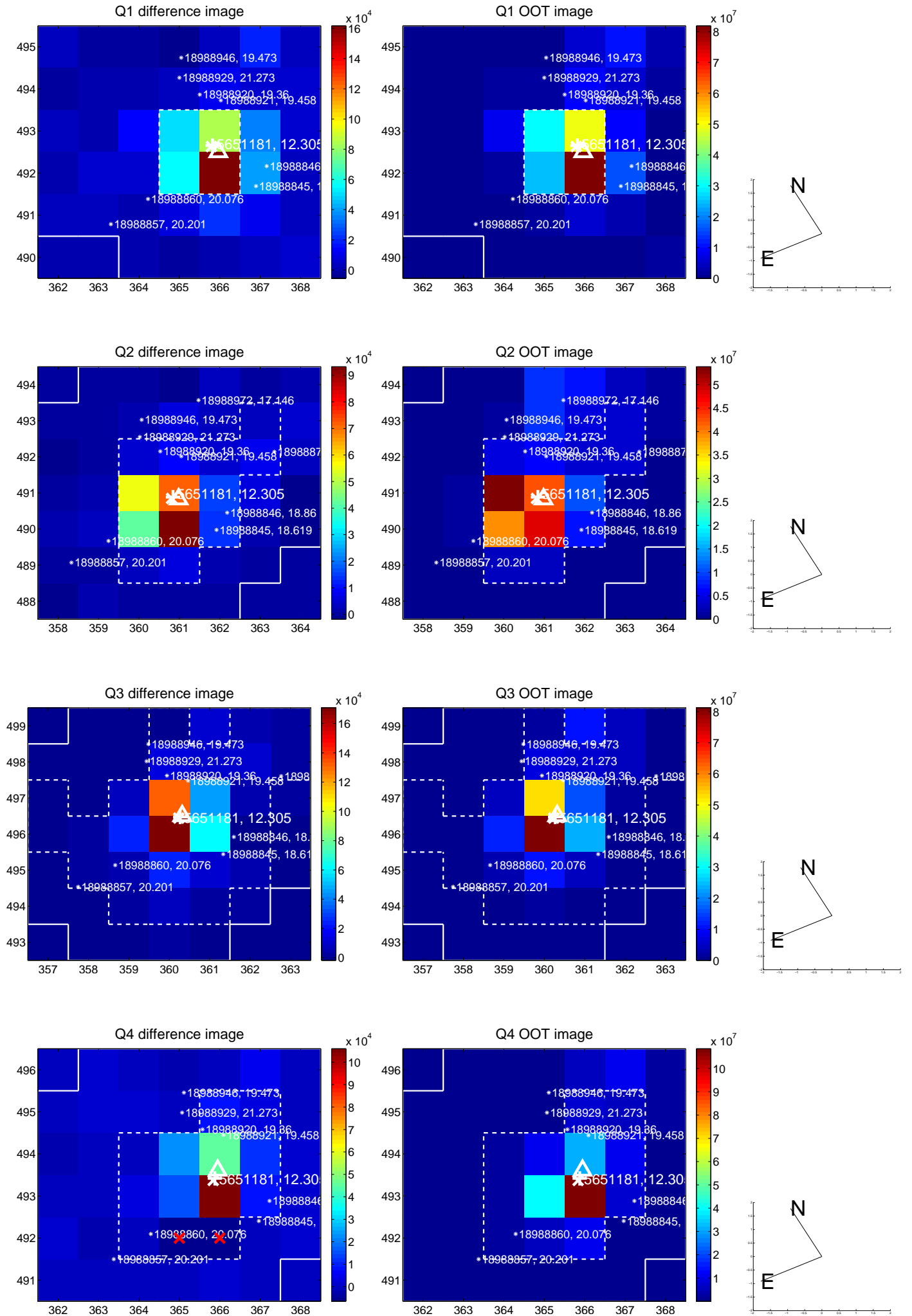
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.251 ± 0.231	1.09	-0.250 ± 0.240	0.028 ± 0.196
PRF-fit source offset from KIC position	0.451 ± 0.244	1.85	-0.439 ± 0.269	0.103 ± 0.213
photometric centroid source offset	0.19 ± 0.18	1.07	-0.19 ± 0.18	0.04 ± 0.16

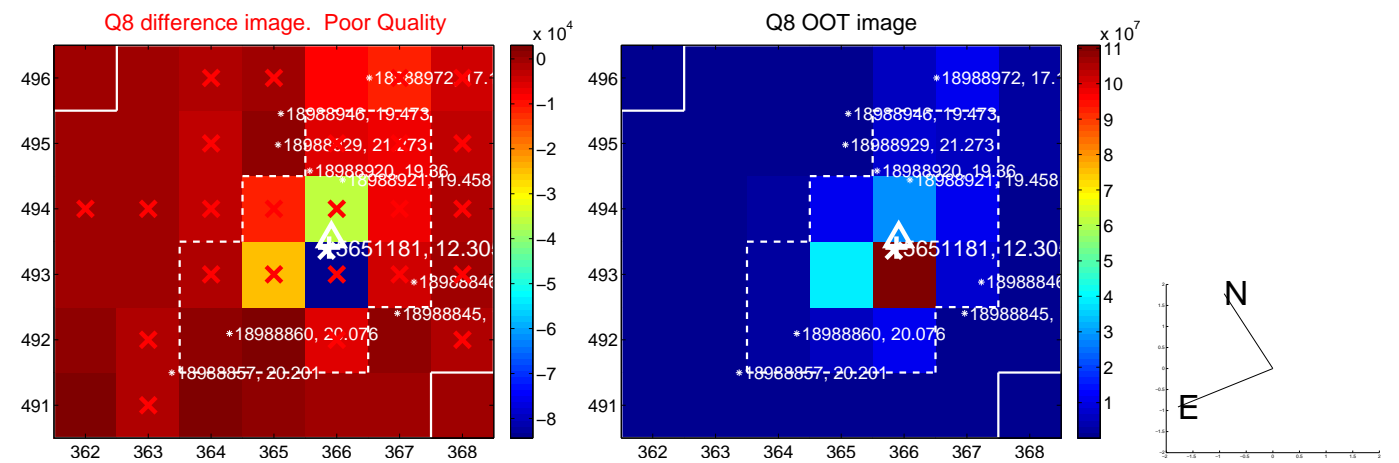
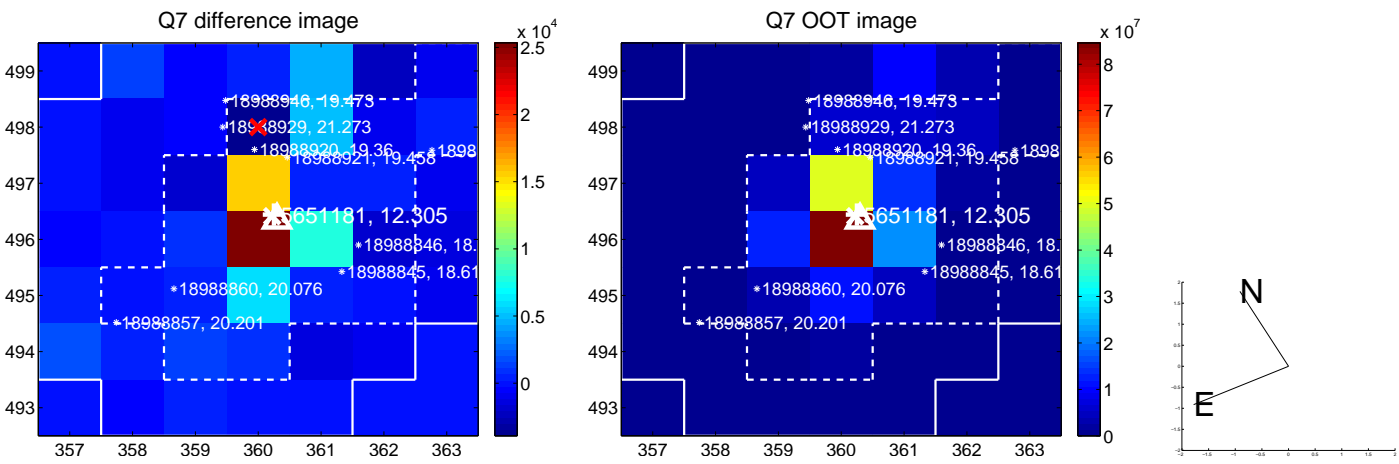
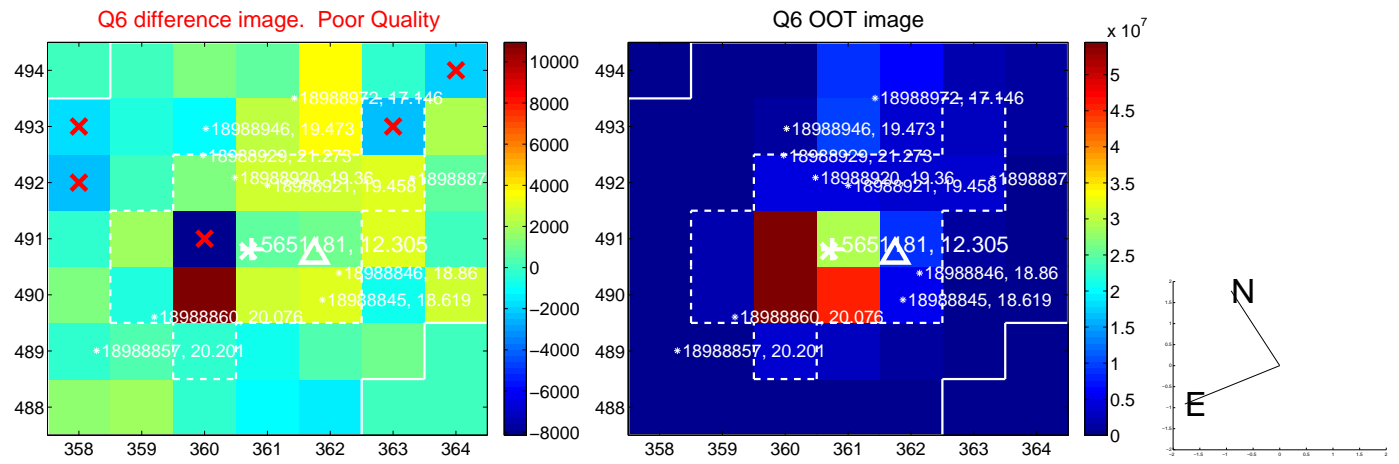
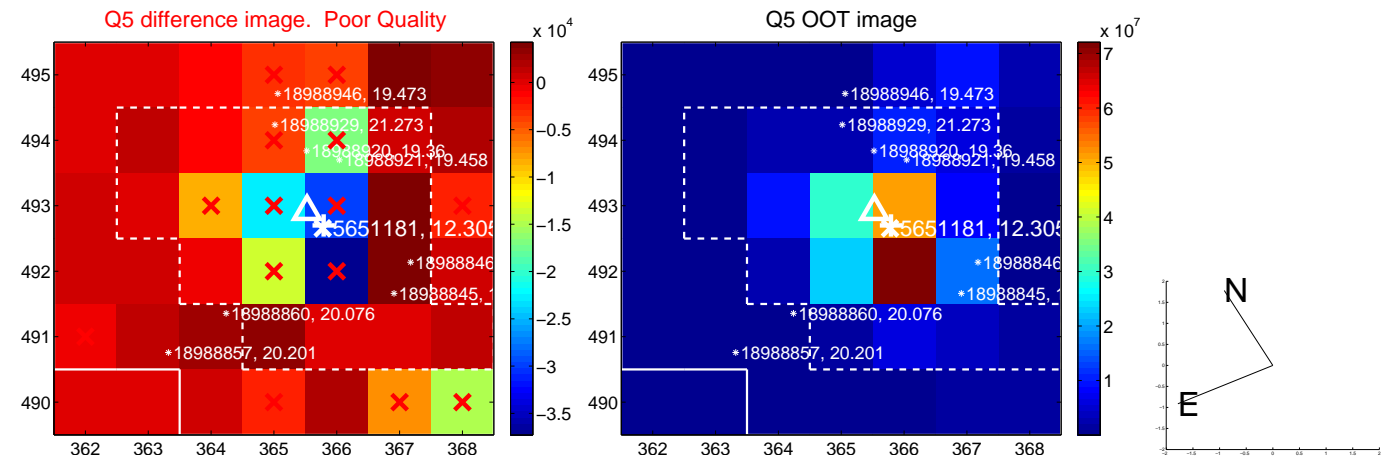


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

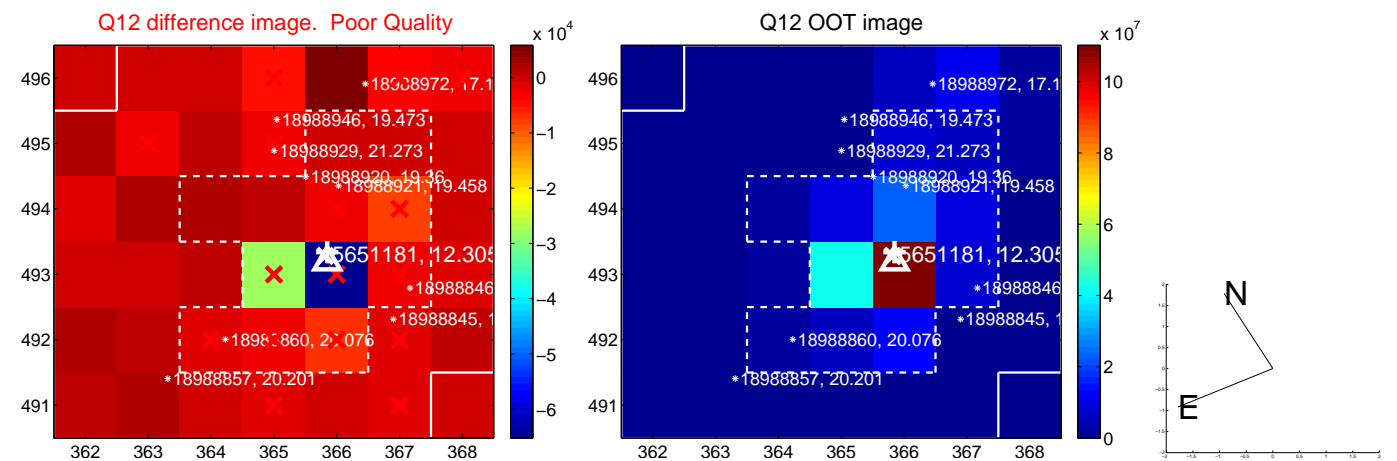
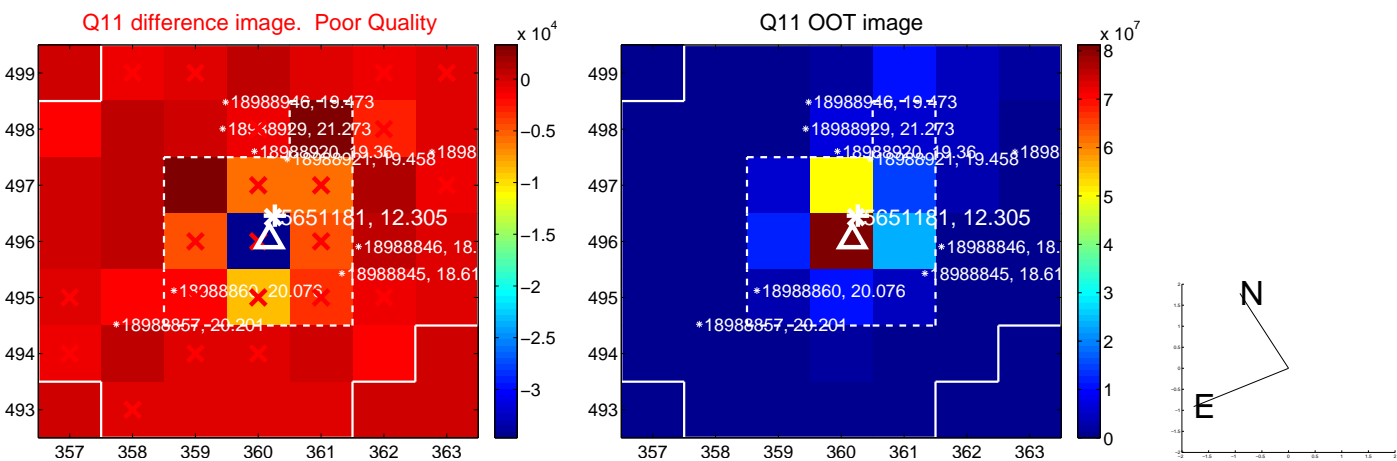
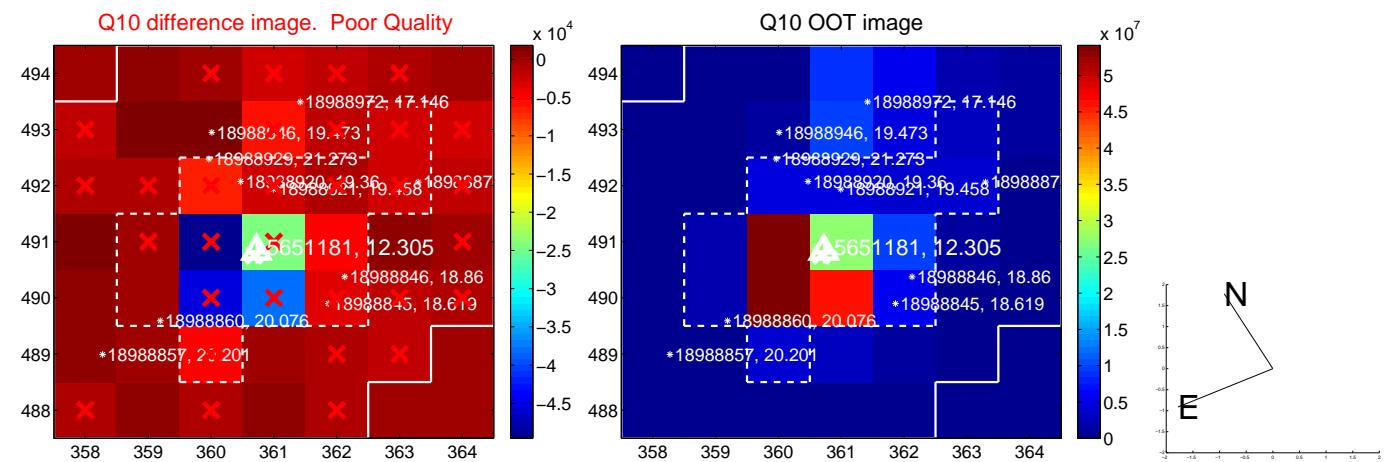
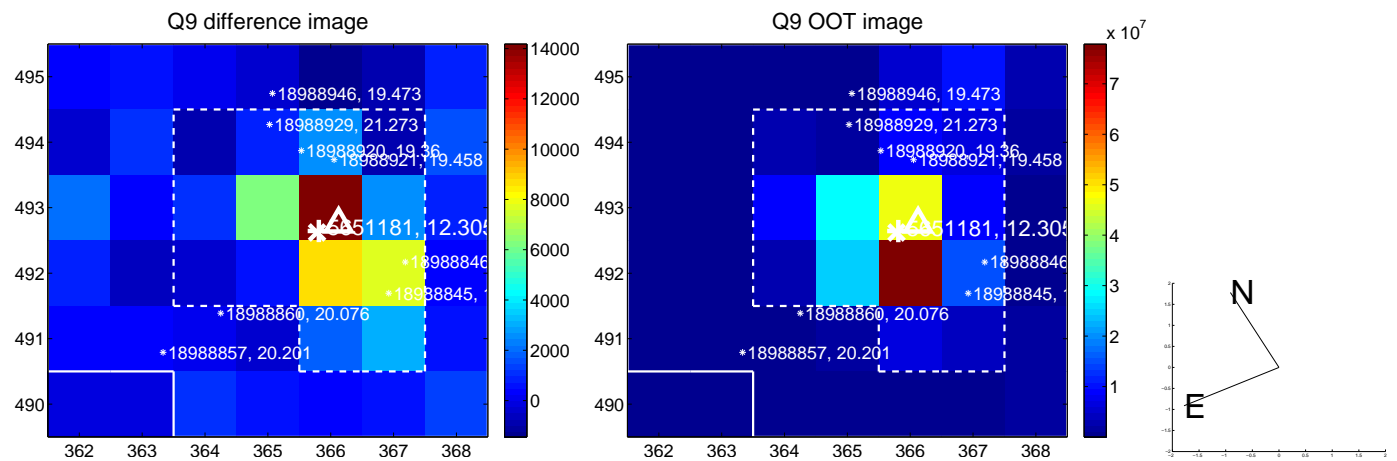
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



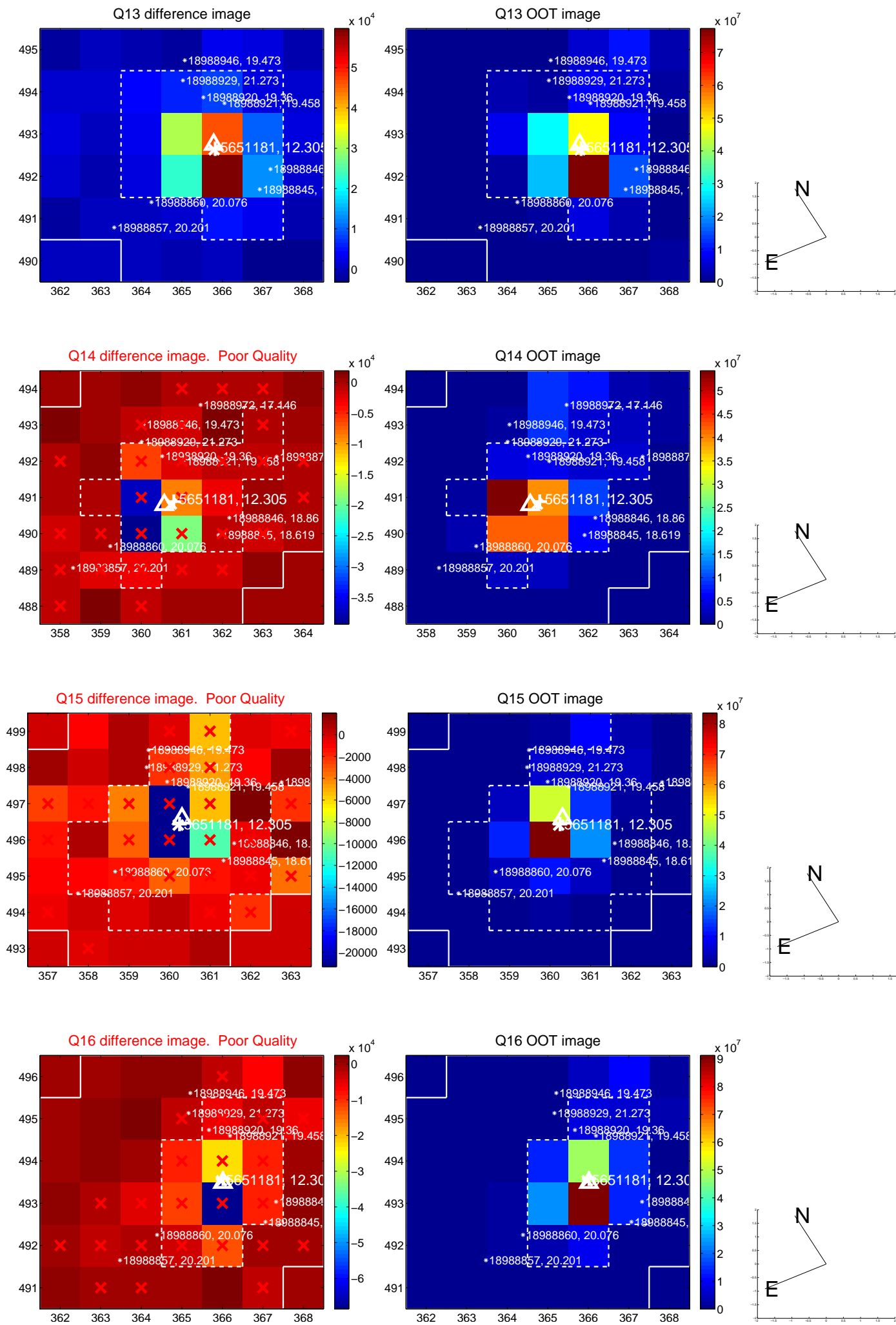
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



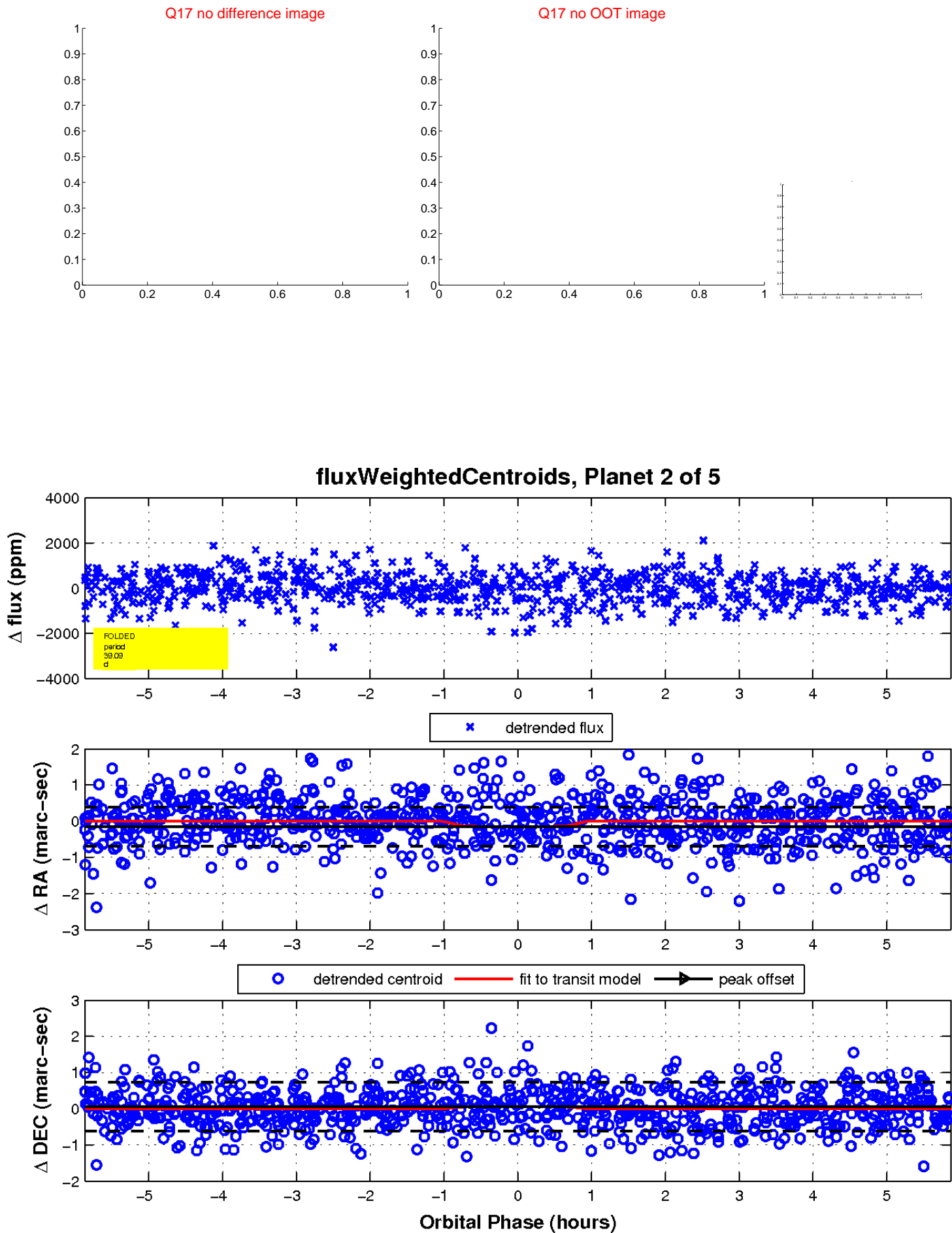
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

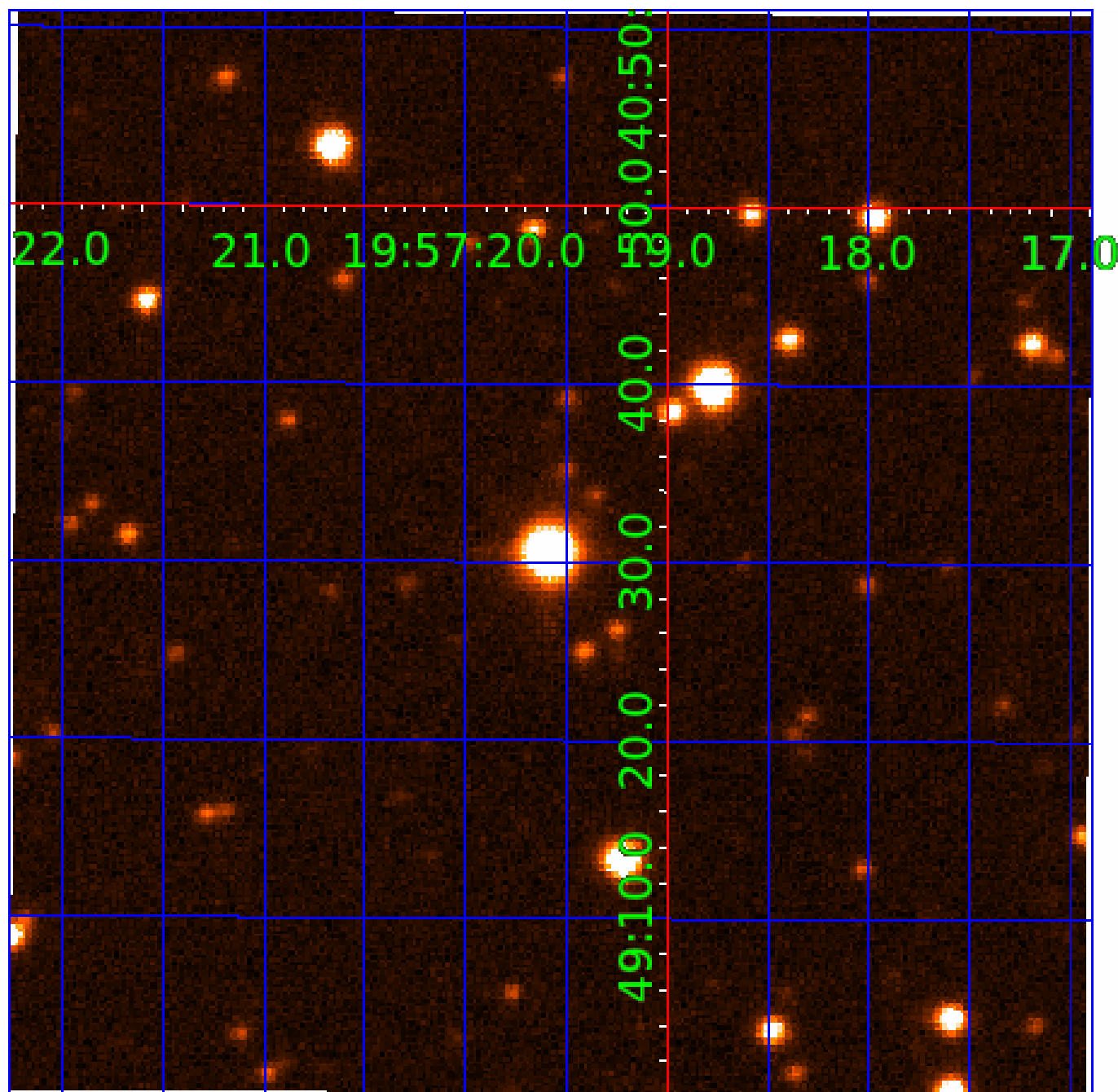


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005651181

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})
005651181-01	OBS	No	1.185583	131.814436	197.7	7.276	16.1	18.6	3.06	8529	5.75	58102.92
005651181-02	OBS	No	39.093056	147.891065	1054.2	1.960	10.3	9.3	3.06	8529	11.35	549.51
005651181-03	OBS	No	48.871451	179.886132	1084.3	2.122	10.6	10.7	3.06	8529	10.68	408.04
005651181-04	OBS	No	10.585976	133.252295	603.5	3.842	10.0	11.7	3.06	8529	13.48	3136.65
005651181-05	OBS	No	30.210162	157.332033	207.6	3.000	10.8	-1.0	3.06	8529	4.48	774.88

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005651181-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005651181-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005651181-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005651181-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005651181-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

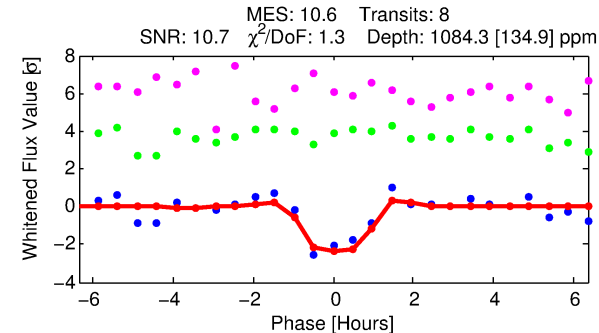
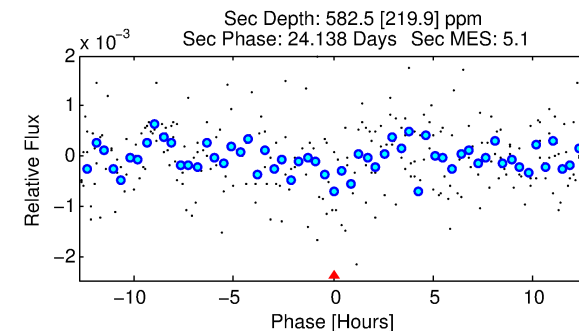
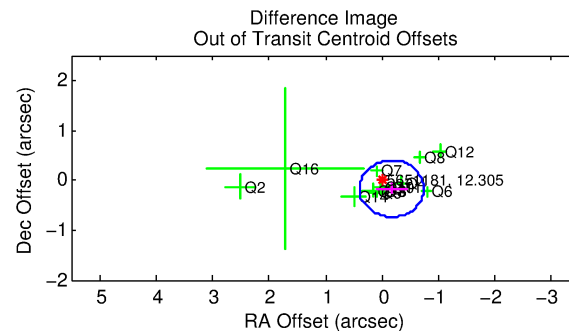
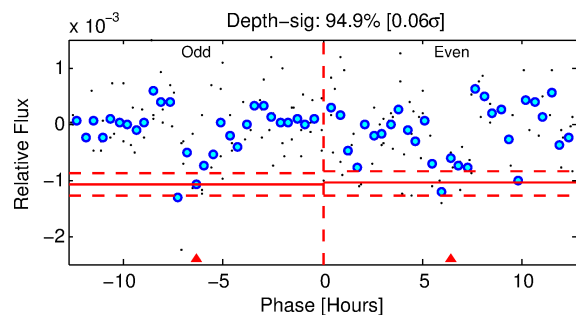
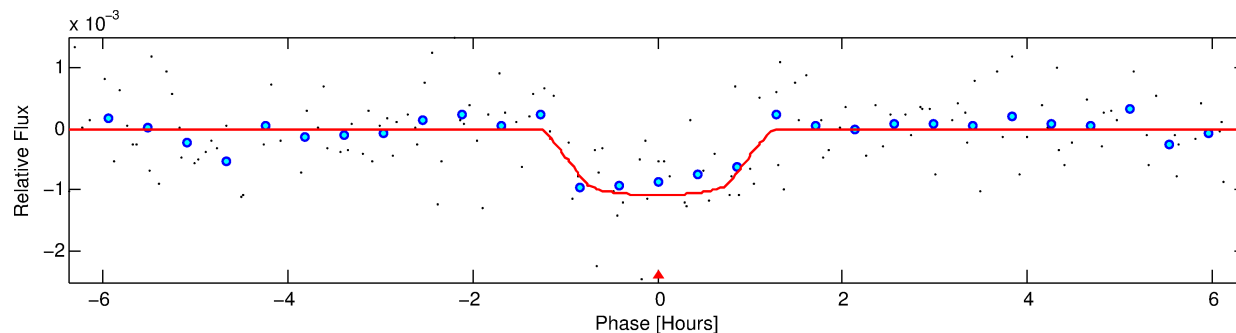
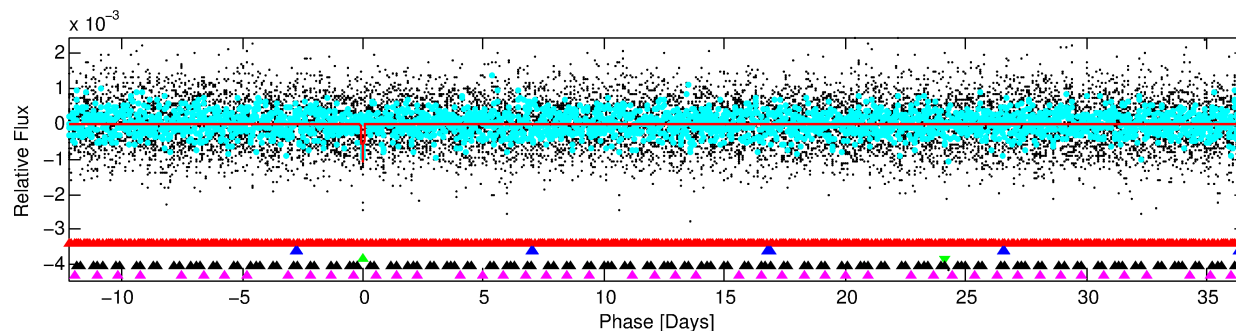
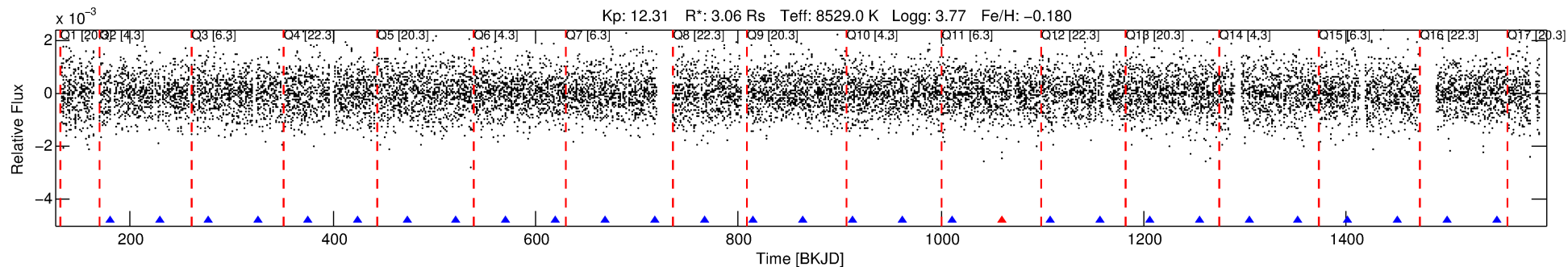
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005651181-03

No Significant Match Found

DV One-Page Summary

KIC: 5651181 Candidate: 3 of 5 Period: 48.871 d



DV Fit Results:

Period = 48.87145 [0.00037] d
Epoch = 179.8861 [0.0055] BKJD
Rp/R* = 0.0319 [0.0398]
a/R* = 144.48 [1077.66]
b = 0.62 [7.35]
Seff = 408.04 [278.71]
Teq = 1146 [196] K
Rp = 10.68 [14.11] Re
a = 0.3304 [0.1379] AU
Ag = 306.55 [798.11] [0.38 σ]
Teffp = 7414 [4679] K [1.34 σ]

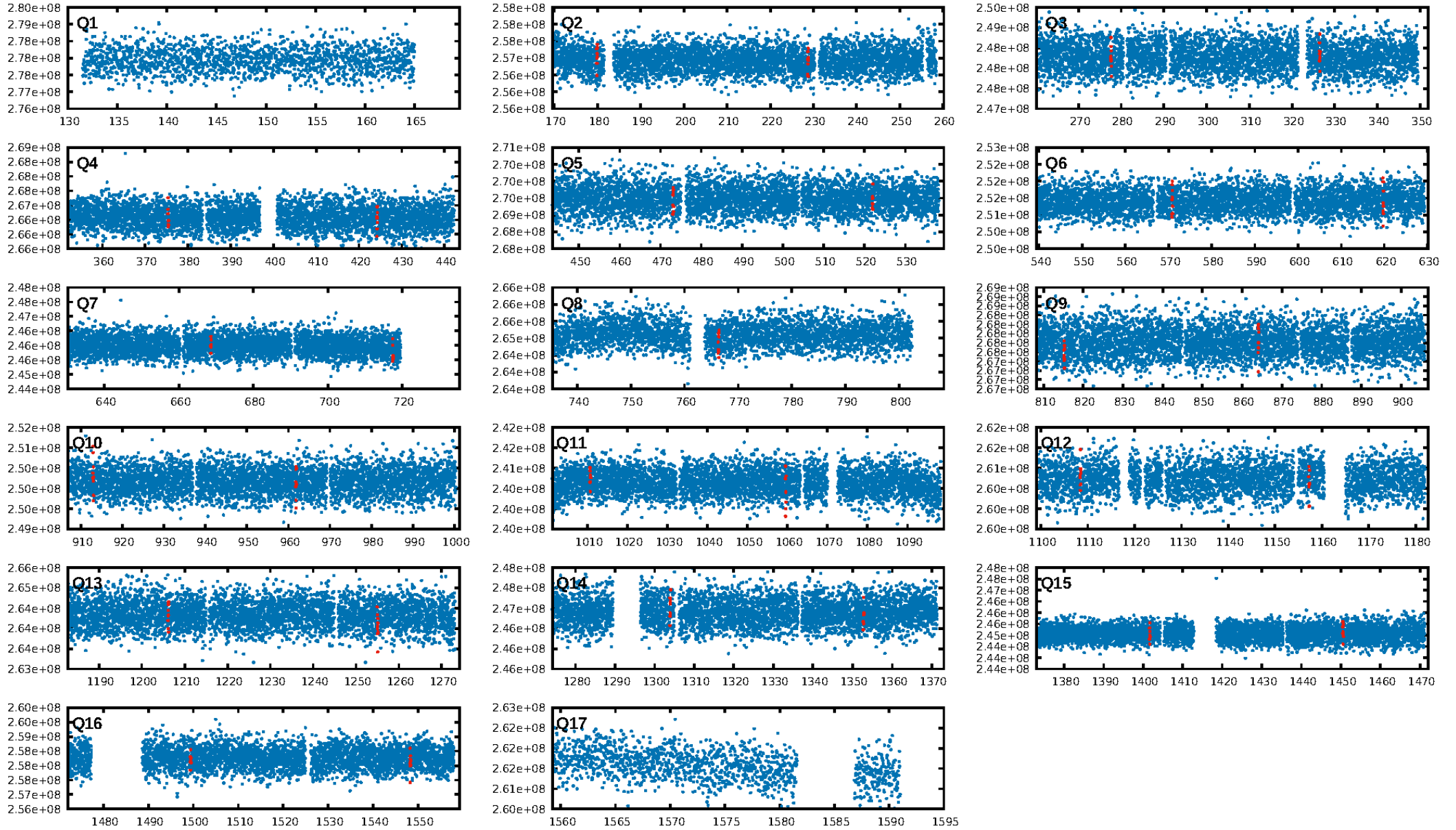
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [81.23 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 25.5%
ModelChiSquareGof-sig: 89.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.88 [7/8]
GhostDiagnostic-chr: -0.4602
Centroid-sig: 8.9%
Centroid-so: 0.138 arcsec [0.77 σ]
OotOffset-rm: 0.238 arcsec [1.26 σ]
OotOffset-st: 4/3/4/2 [13]
KicOffset-rm: 0.358 arcsec [1.36 σ]
KicOffset-st: 4/3/4/2 [13]
DiffImageQuality-fgm: 0.62 [8/13]
DiffImageOverlap-fno: 0.47 [7/15]

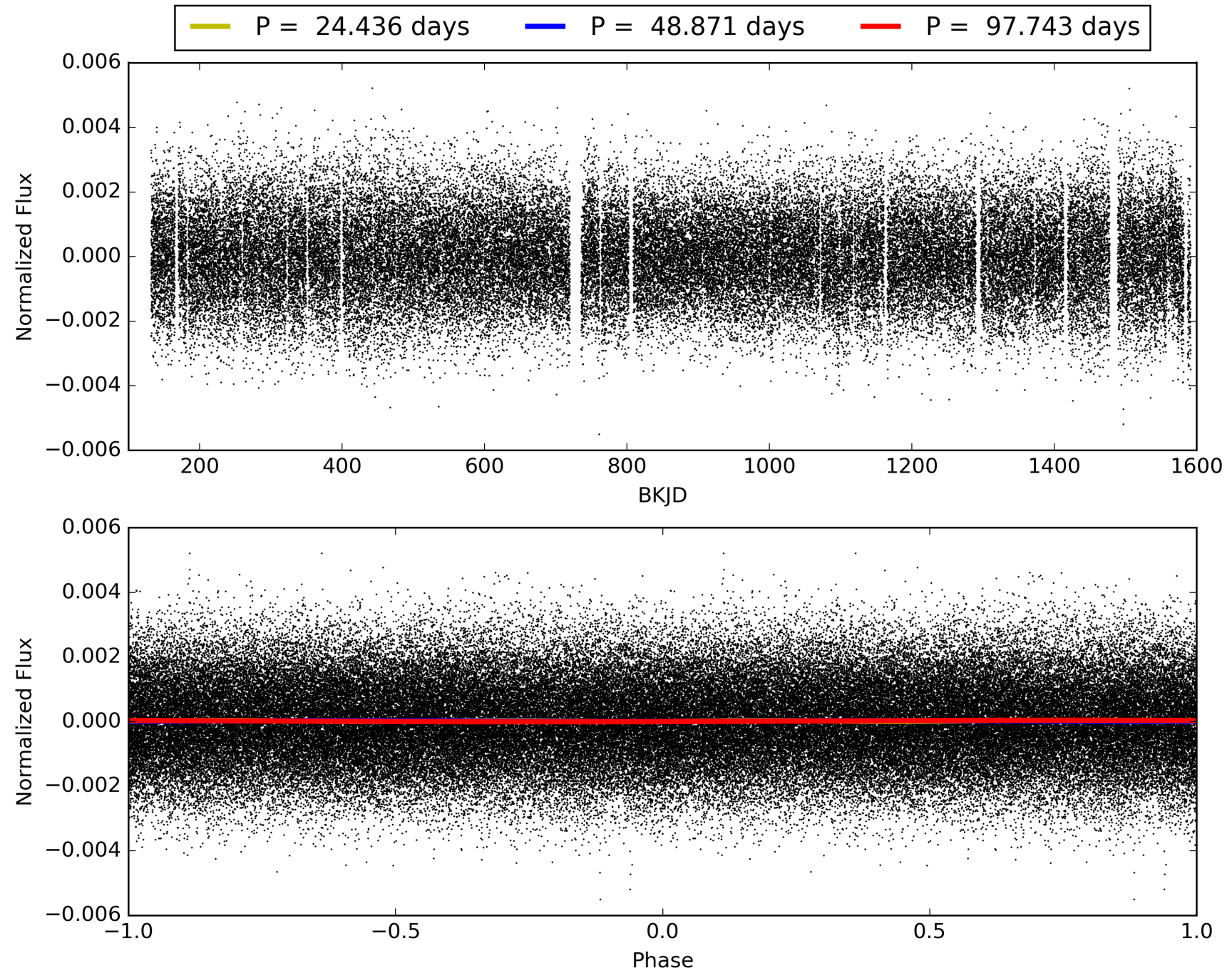
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:58:52 Z

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

TCE 005651181-03, PDC Light Curves

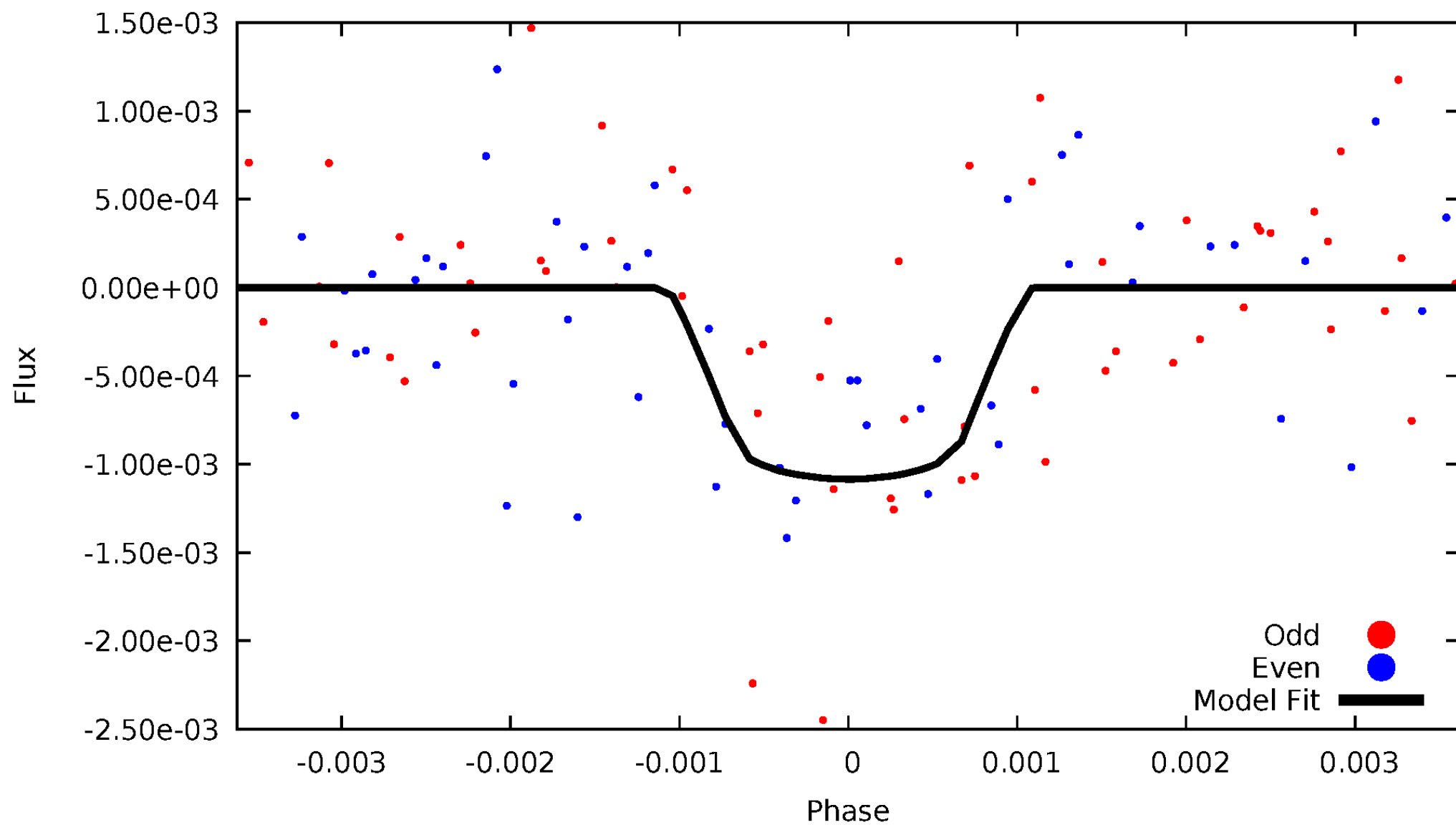


TCE 005651181-03



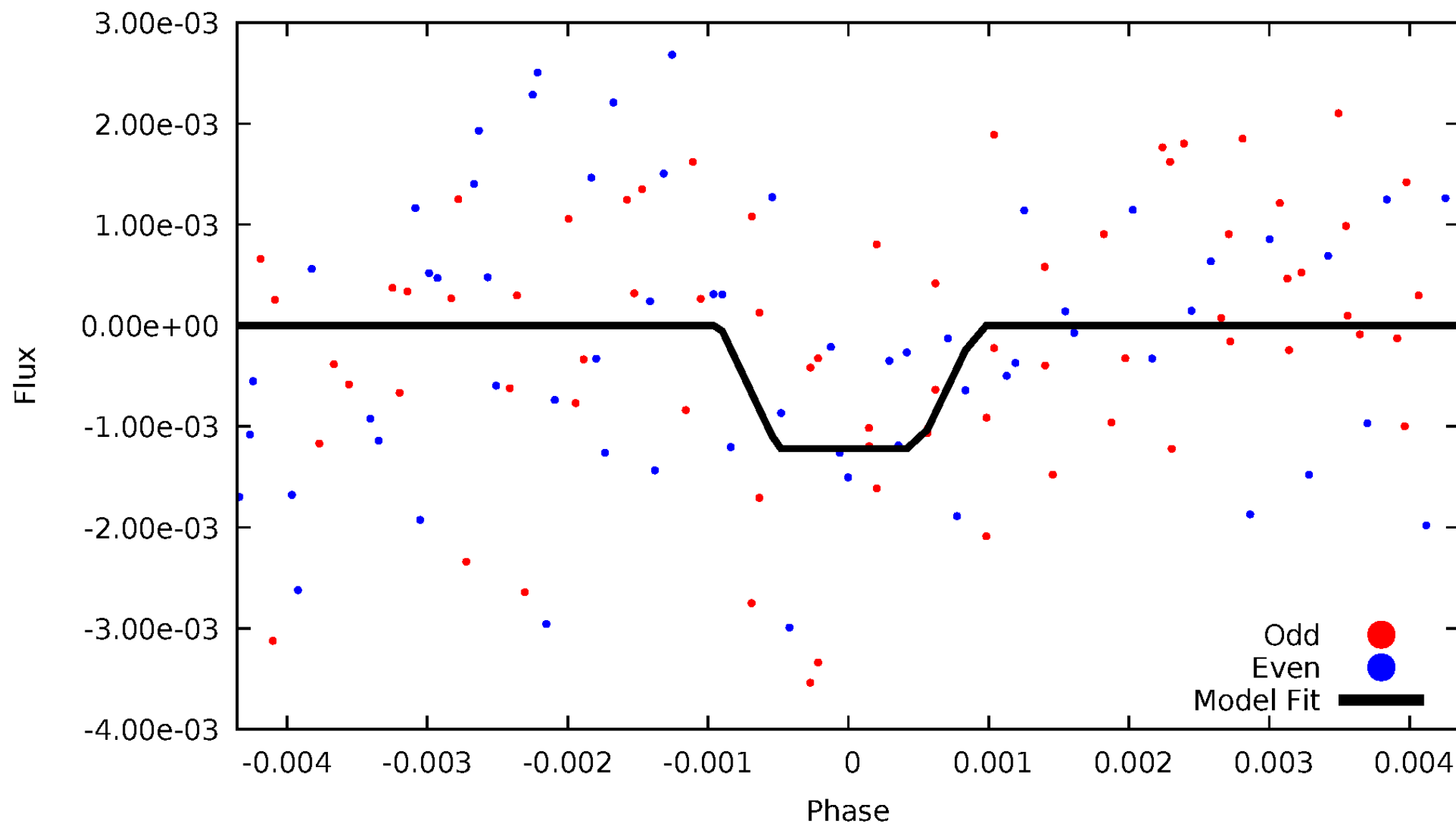
DV Odd/Even

TCE 005651181-03



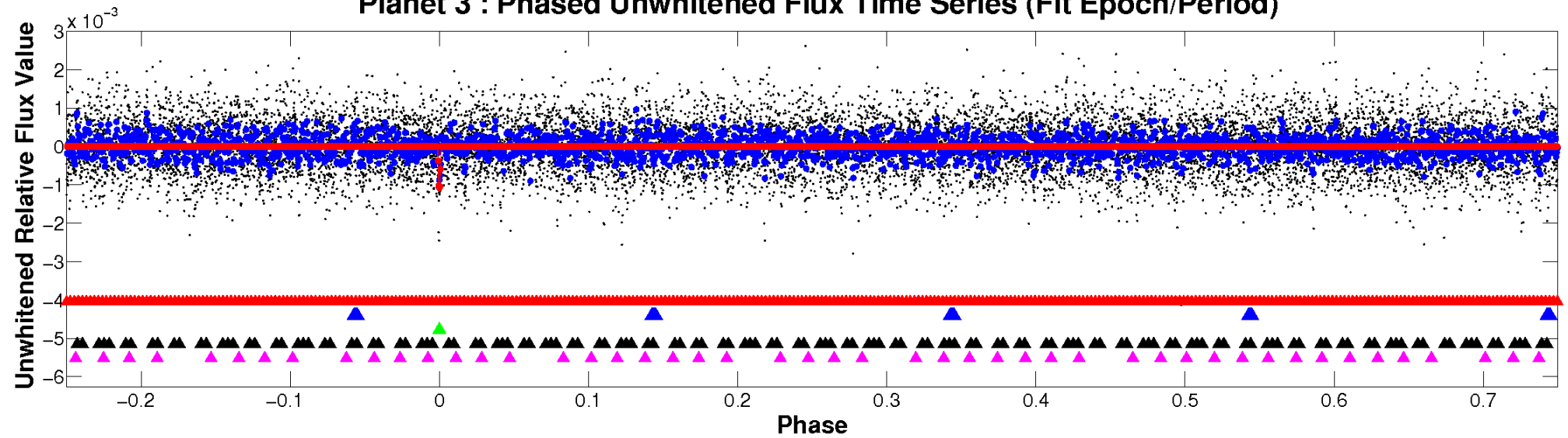
ALT Odd/Even

TCE 005651181-03

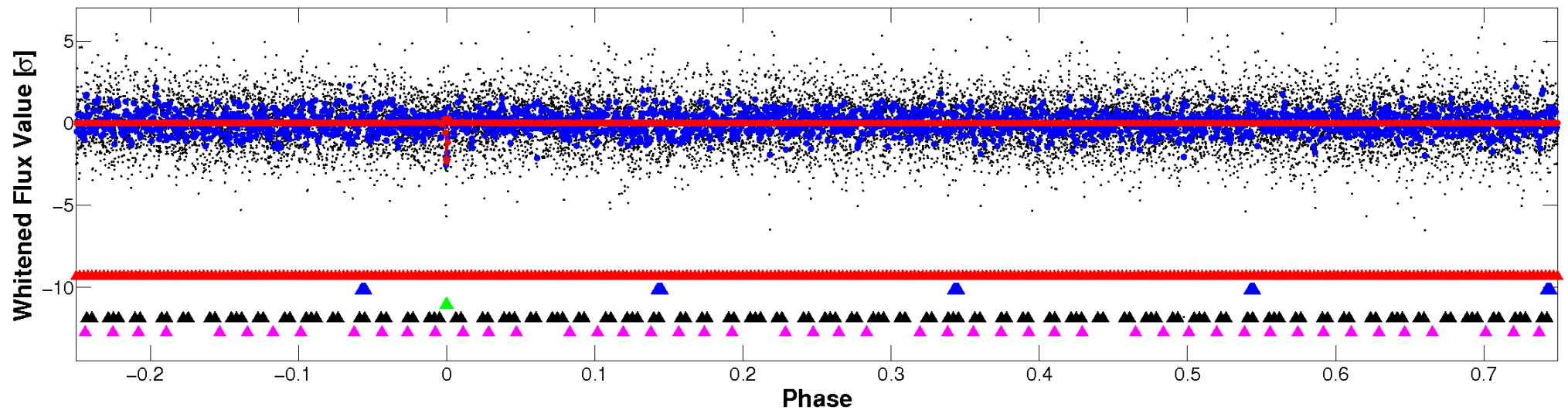


Non-Whitened Vs. Whitened Light Curve

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

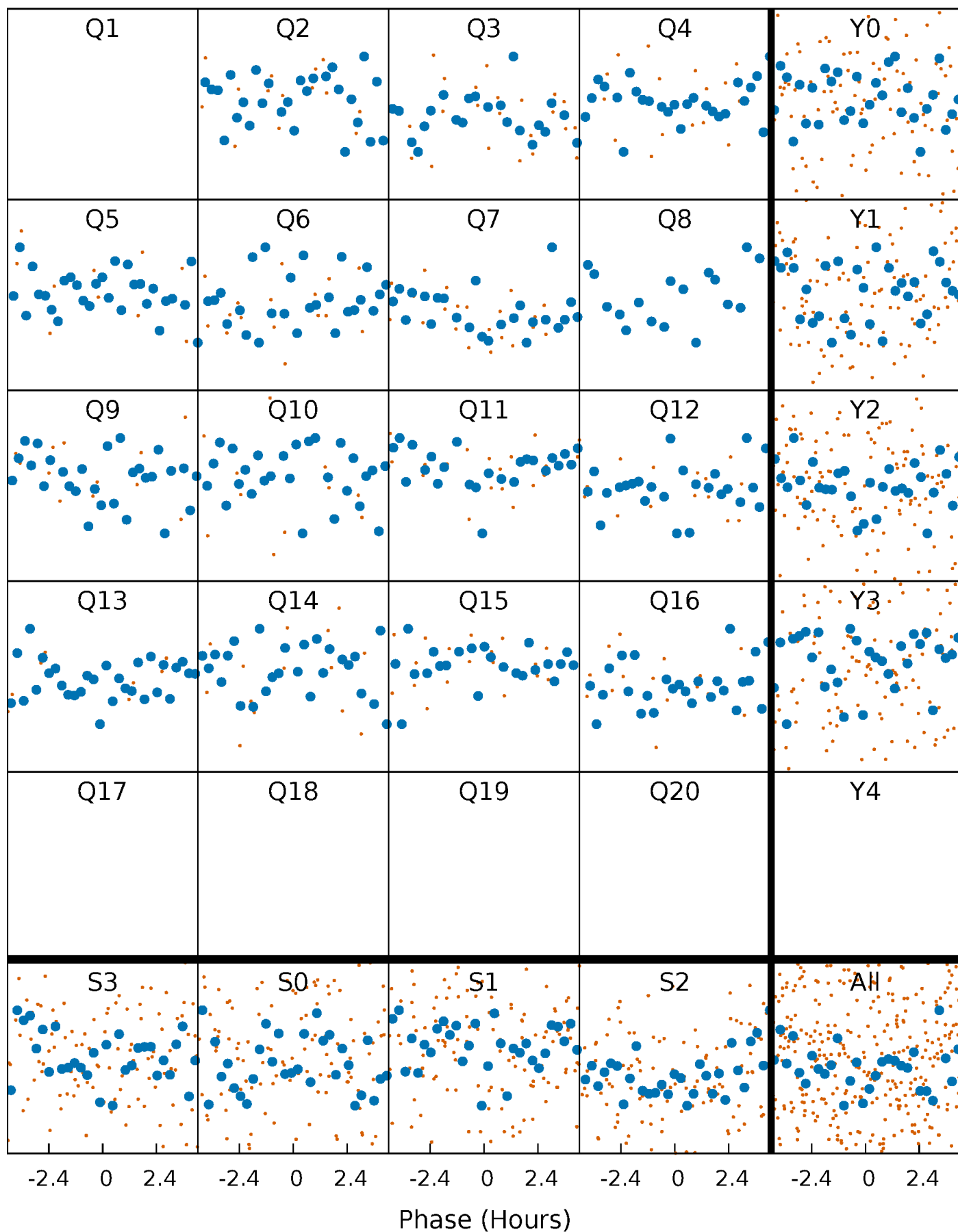


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



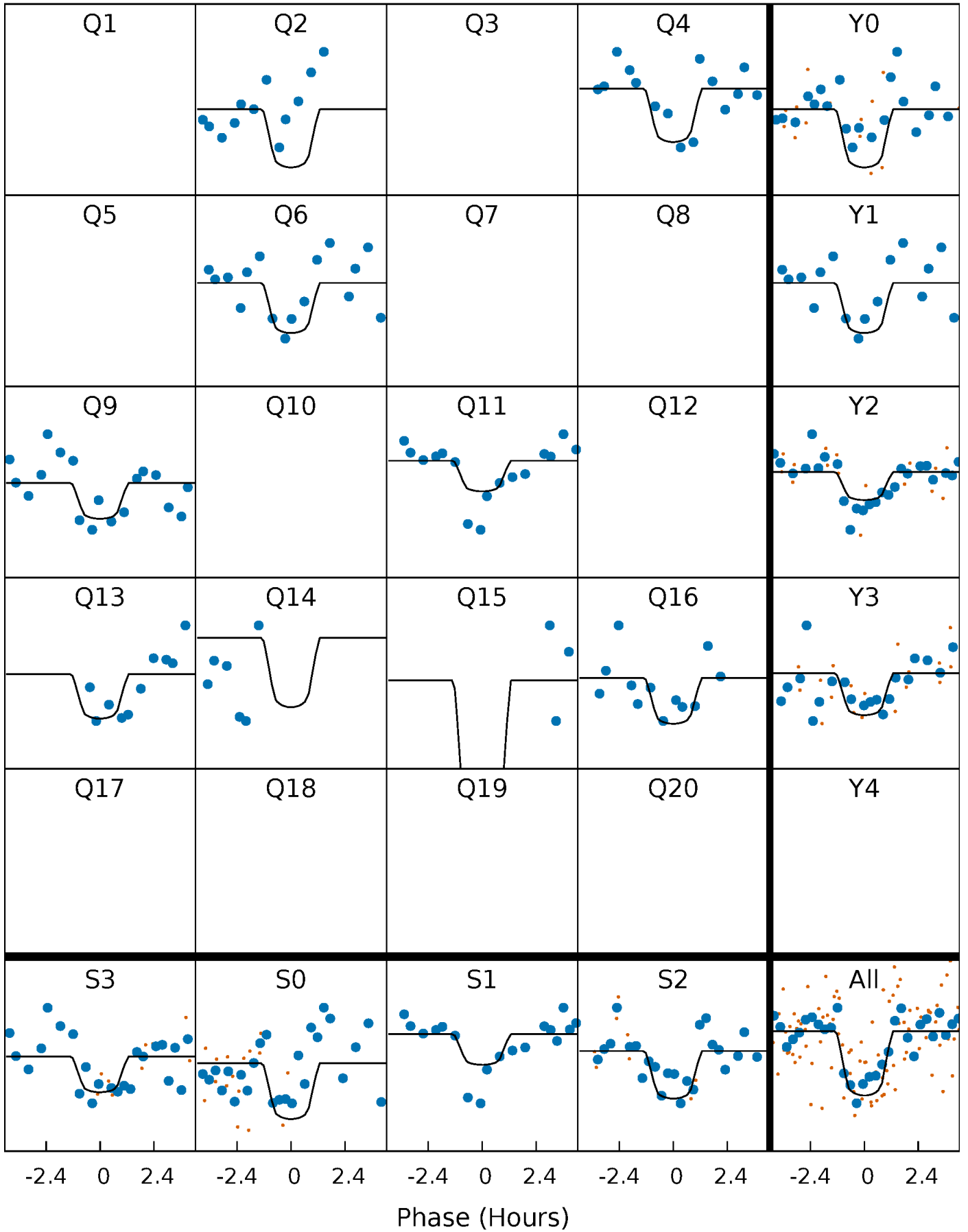
PDC Quarter-Phased Transit Curves

TCE 005651181-03 P= 48.871451 Days $T_0=179.886132$ (BKJD)



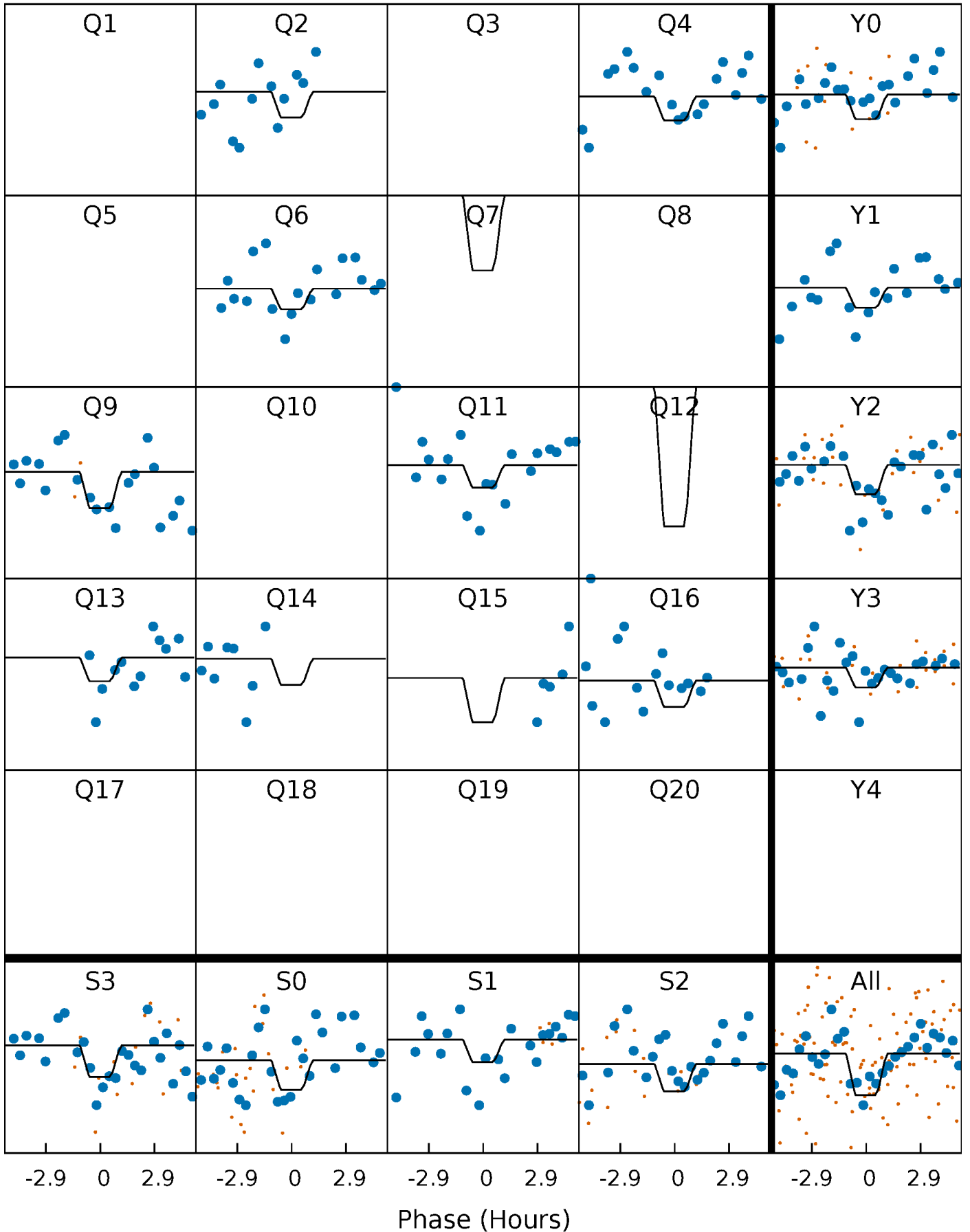
DV Quarter-Phased Transit Curves

TCE 005651181-03 P= 48.871451 Days $T_0=179.886132$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

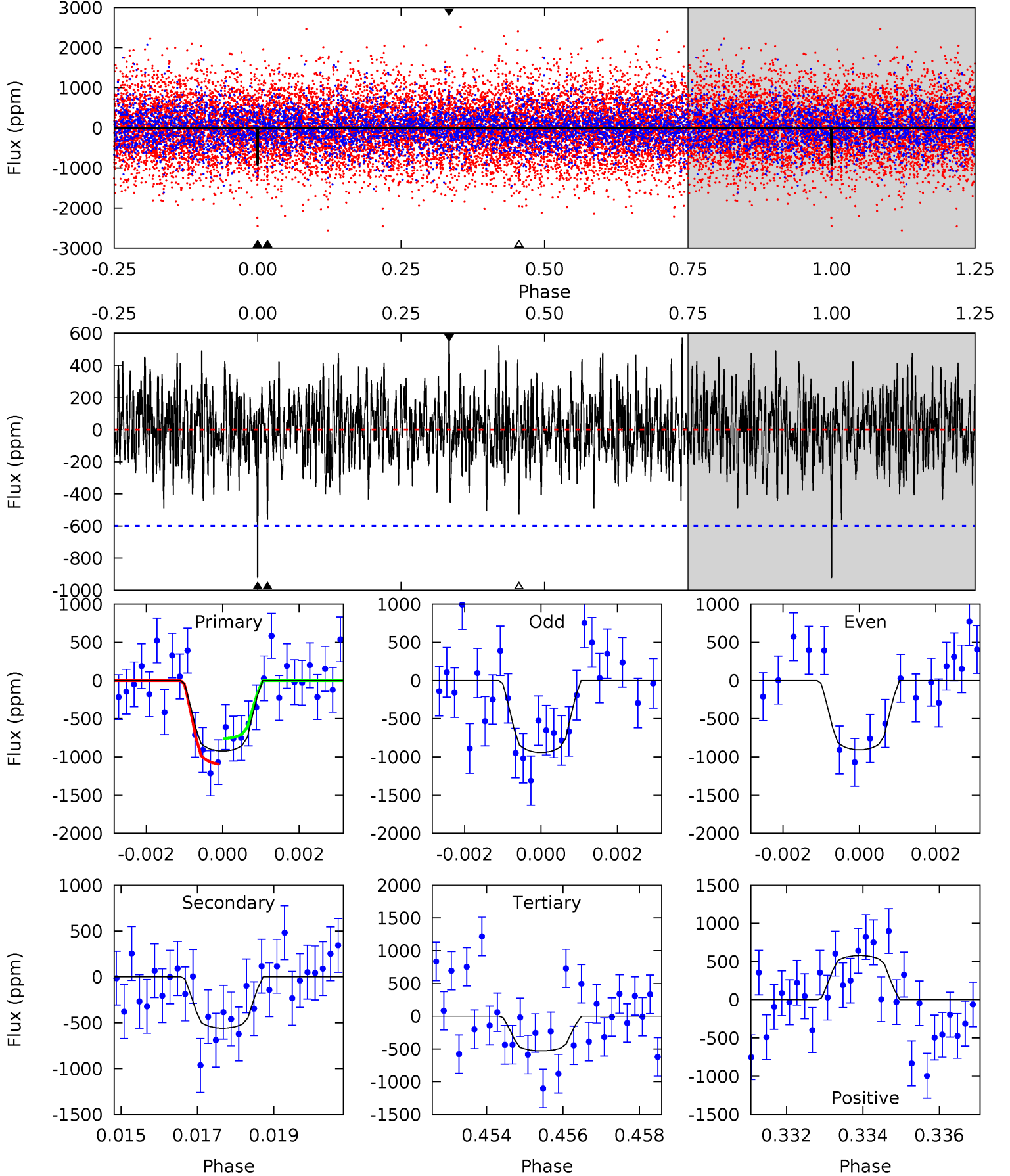
TCE 005651181-03 P= 48.871523 Days $T_0=179.890846$ (BKJD)



DV Model-Shift Uniqueness Test

005651181-03, $P = 48.871451$ Days, $E = 131.014681$ Days

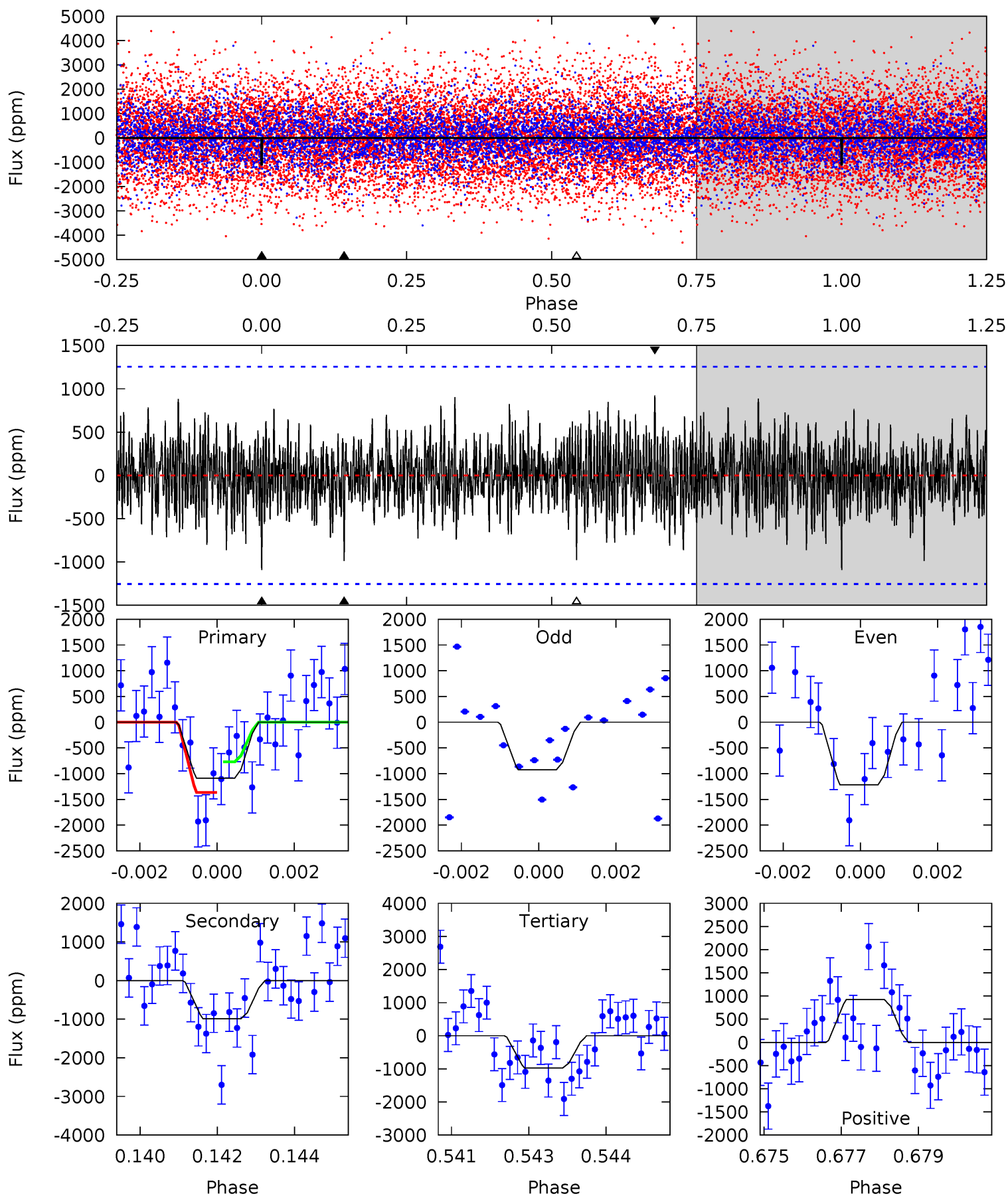
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.21	4.97	4.70	5.14	5.32	3.08	1.53	3.50	3.06	0.26	-0.17	0.16	1.09	0.39	1.49



Alt Model-Shift Uniqueness Test

005651181-03, P = 48.871523 Days, E = 131.019323 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.64	4.20	4.16	3.94	5.34	3.12	1.27	0.48	0.71	0.04	0.27	0.61	0.86	0.46	1.26



Stellar Parameters For KIC 005651181

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8529^{+236}_{-371}	$3.769^{+0.385}_{-0.137}$	$-0.180^{+0.400}_{-0.350}$	$3.065^{+1.017}_{-1.356}$	$2.017^{+0.437}_{-0.437}$	$0.099^{+0.333}_{-0.046}$
	+3%/-4%	+10%/-4%	+222%/-194%	+33%/-44%	+22%/-22%	+337%/-47%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005651181-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-559 ± 113	$13.68^{+11.68}_{-8.91}$	1555^{+140}_{-183}	5935^{+5986}_{-1376}	182^{+1428}_{-131}
Alt.	-987 ± 235	$13.27^{+12.64}_{-8.07}$	1559^{+130}_{-178}	6767^{+6278}_{-1611}	301^{+1819}_{-215}

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

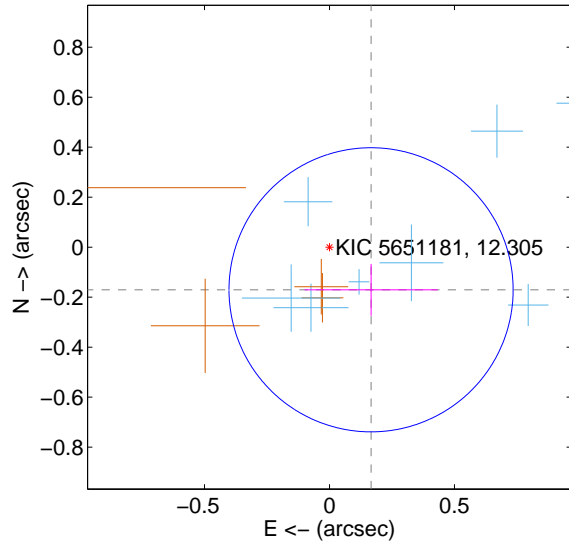
Supplemental centroid analysis for 005651181-03. Kepler magnitude: 12.30. Transit SNR 10.71

There are 8 quarters with good PRF difference image offsets

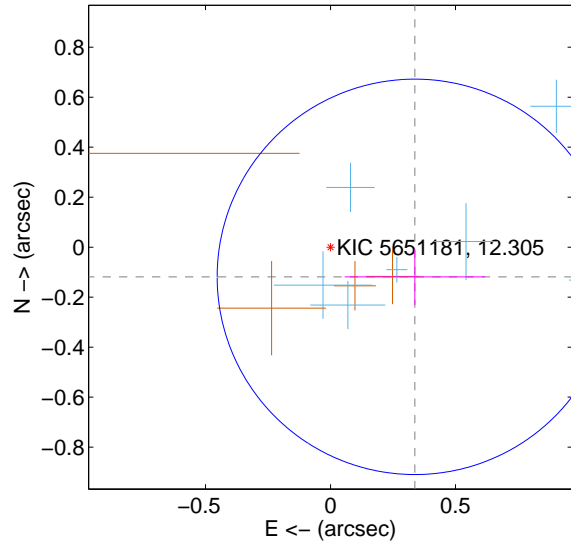
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.238 ± 0.189	1.26	-0.166 ± 0.266	-0.171 ± 0.104
PRF-fit source offset from KIC position	0.358 ± 0.264	1.36	-0.337 ± 0.281	-0.119 ± 0.112
photometric centroid source offset	0.14 ± 0.18	0.77	-0.14 ± 0.18	-0.02 ± 0.16

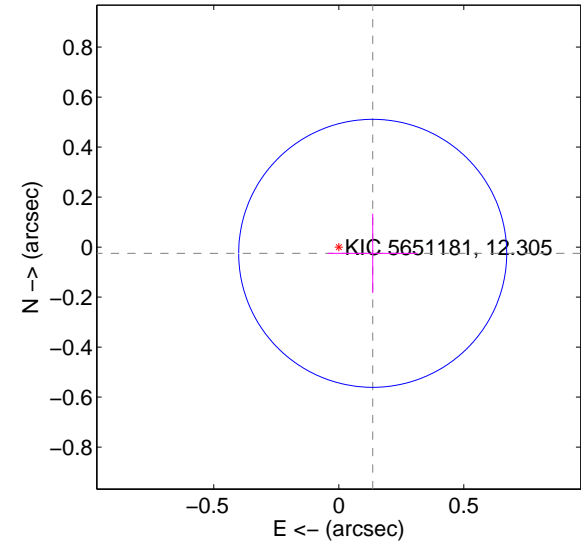
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

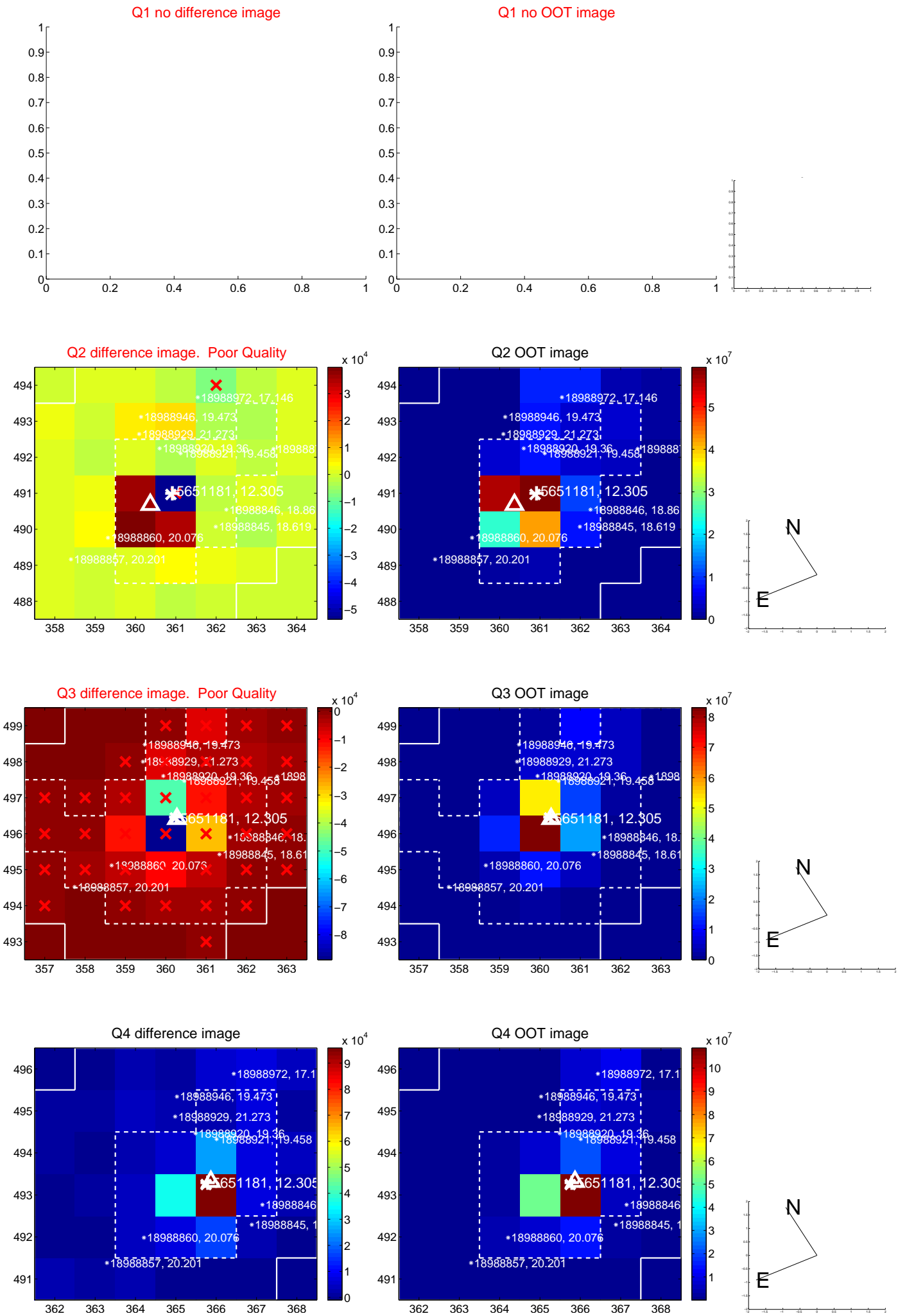


offset from photometric centroids

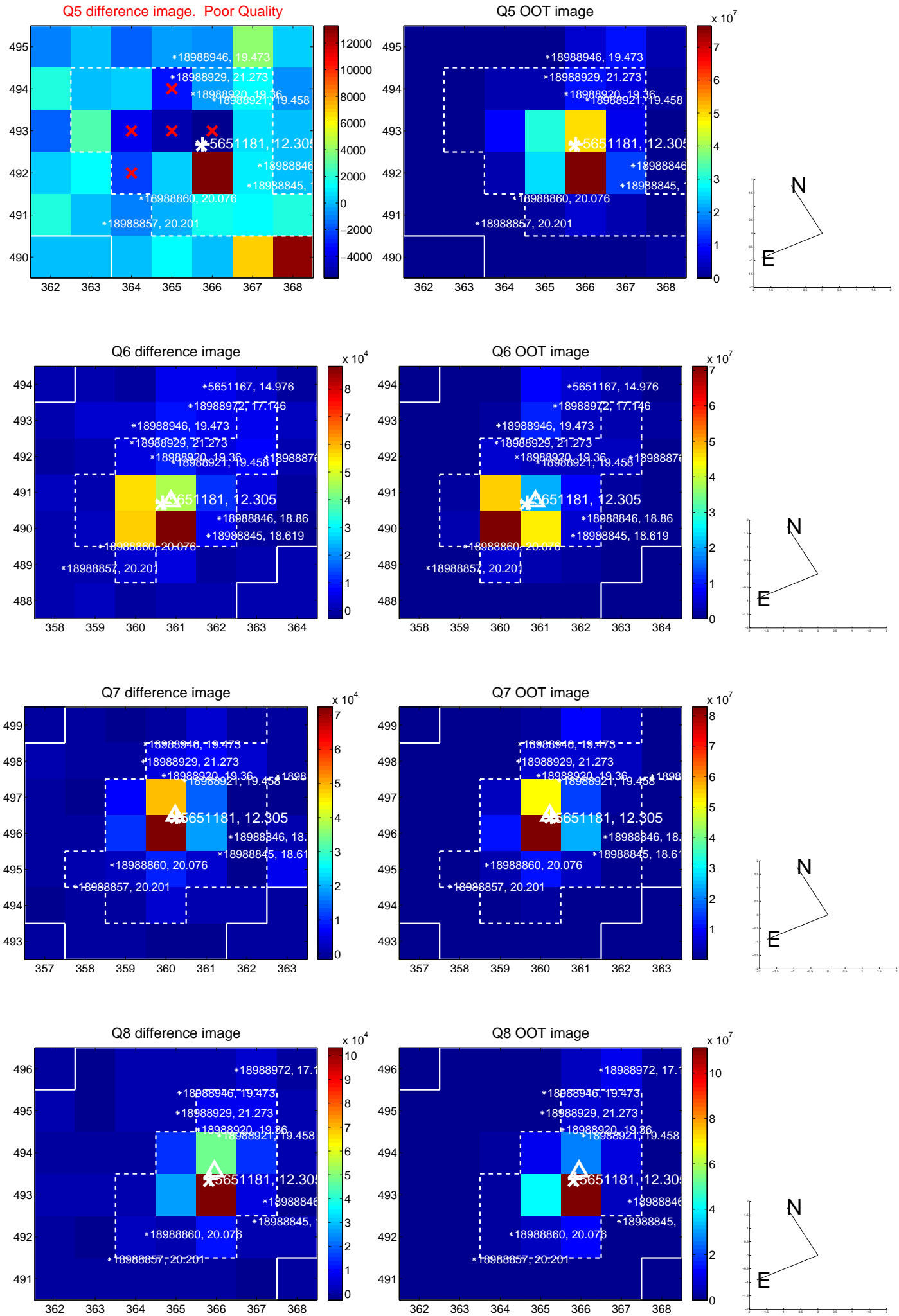


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

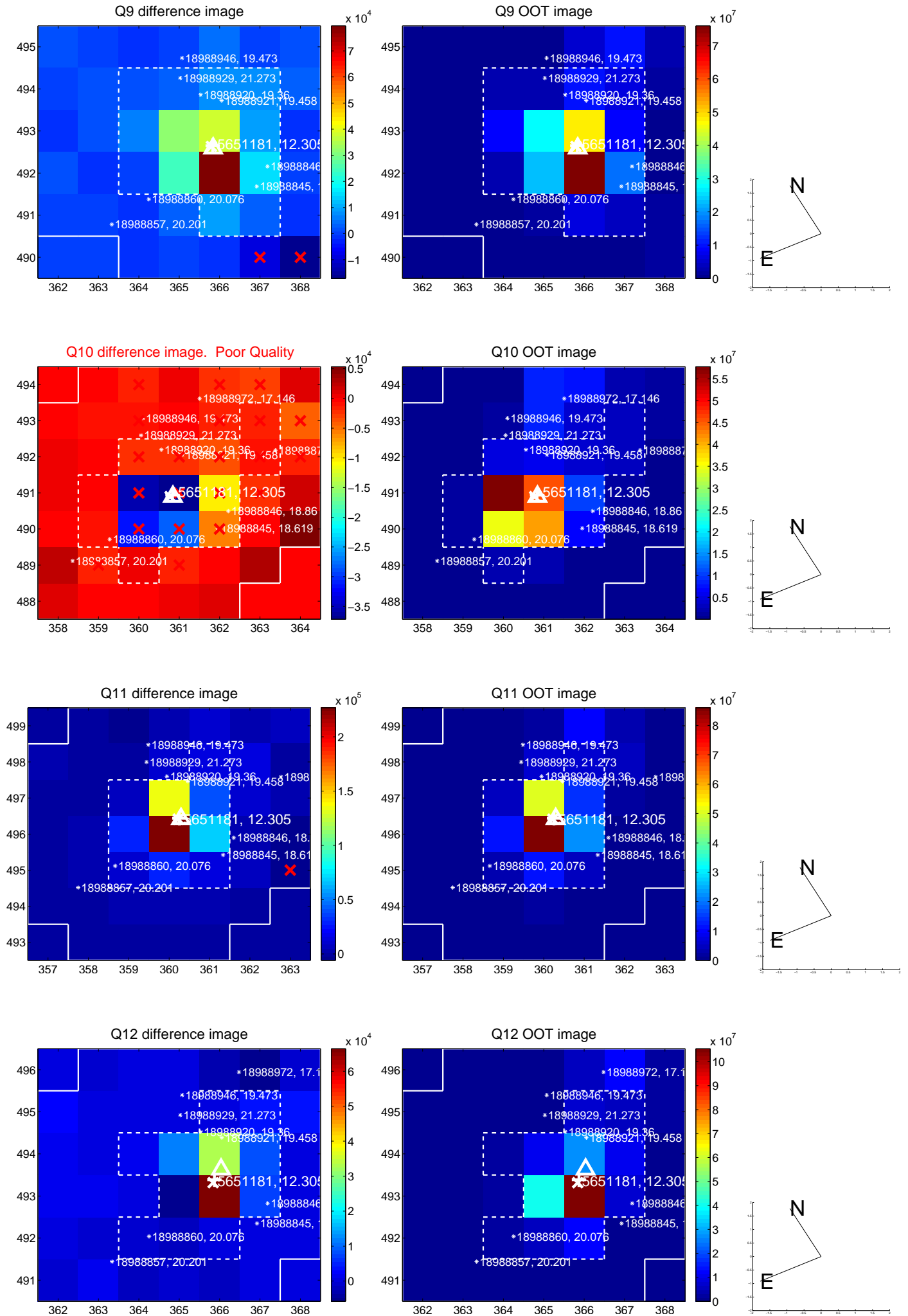
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



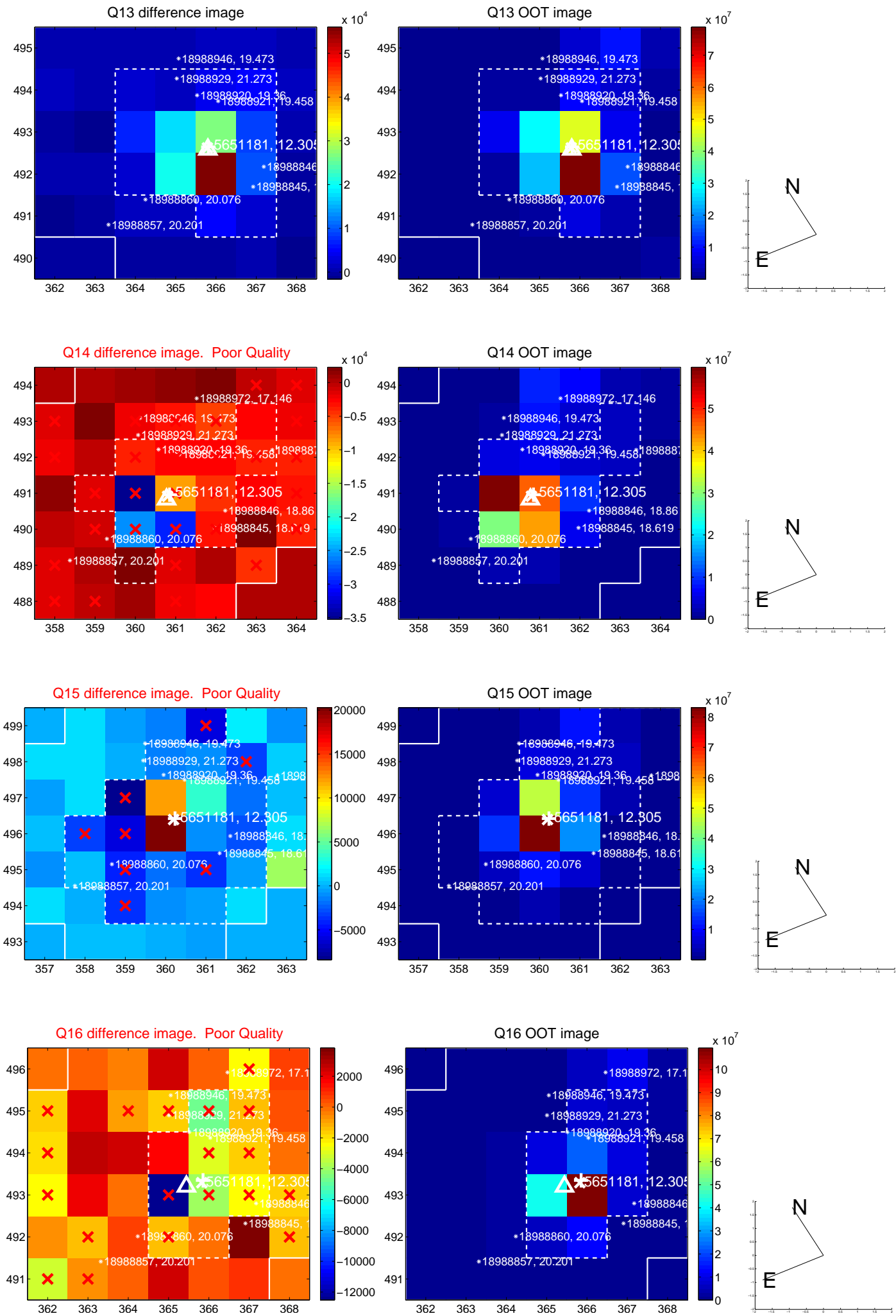
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



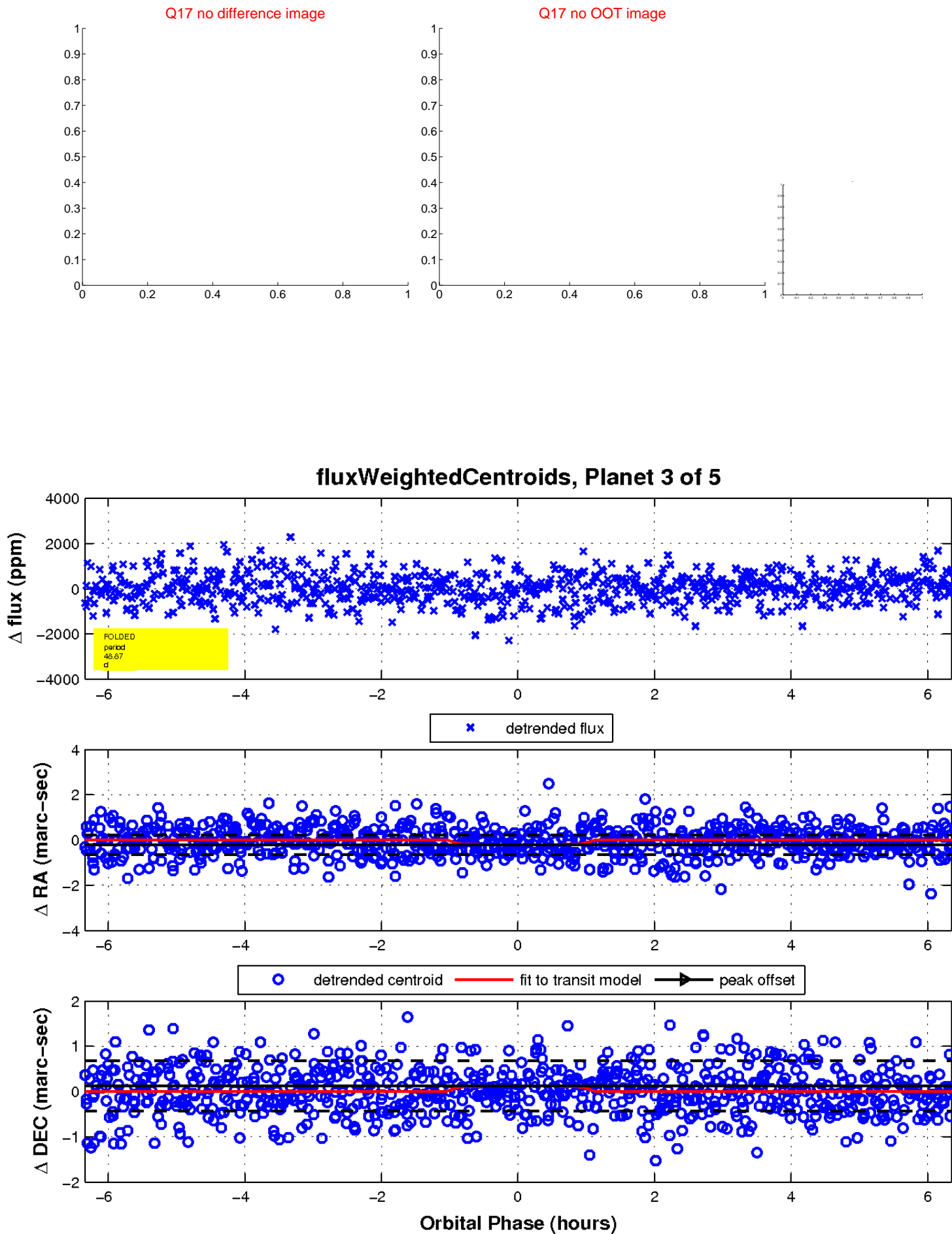
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

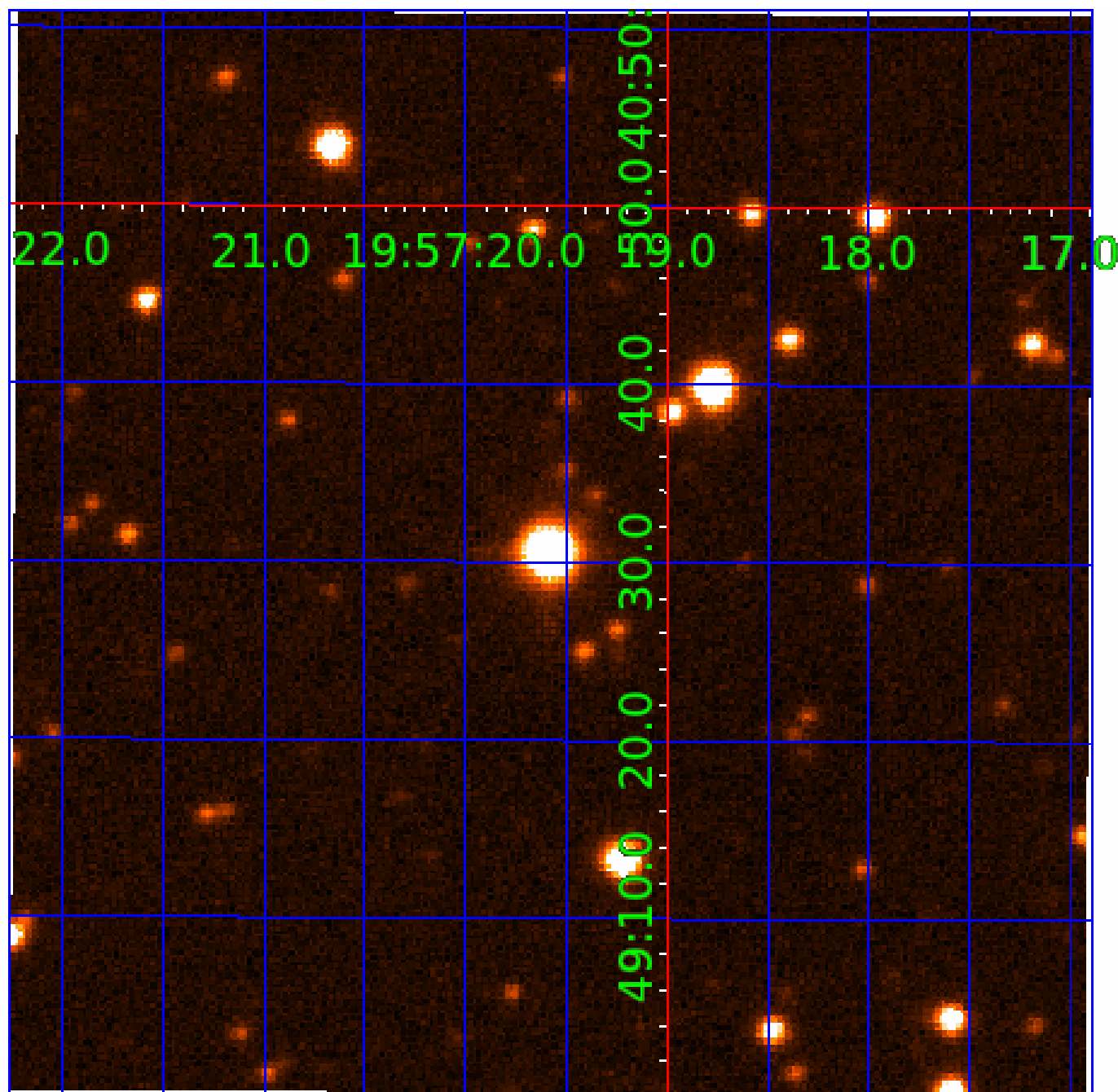


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005651181

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})
005651181-01	OBS	No	1.185583	131.814436	197.7	7.276	16.1	18.6	3.06	8529	5.75	58102.92
005651181-02	OBS	No	39.093056	147.891065	1054.2	1.960	10.3	9.3	3.06	8529	11.35	549.51
005651181-03	OBS	No	48.871451	179.886132	1084.3	2.122	10.6	10.7	3.06	8529	10.68	408.04
005651181-04	OBS	No	10.585976	133.252295	603.5	3.842	10.0	11.7	3.06	8529	13.48	3136.65
005651181-05	OBS	No	30.210162	157.332033	207.6	3.000	10.8	-1.0	3.06	8529	4.48	774.88

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005651181-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005651181-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005651181-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005651181-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005651181-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

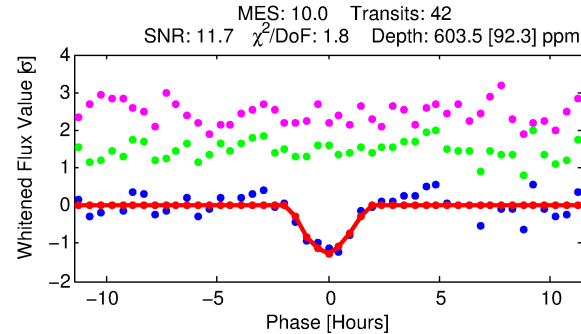
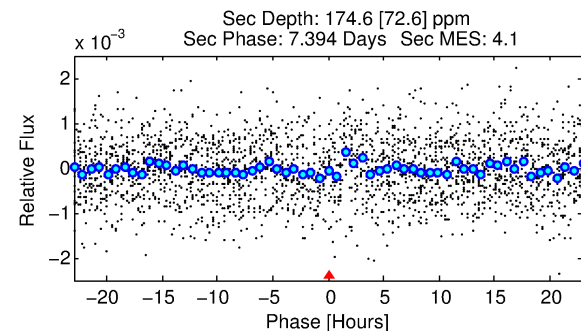
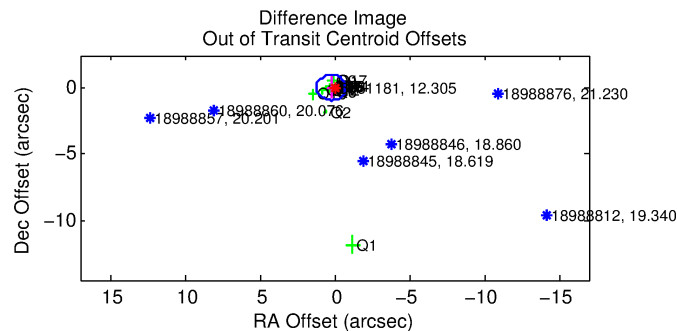
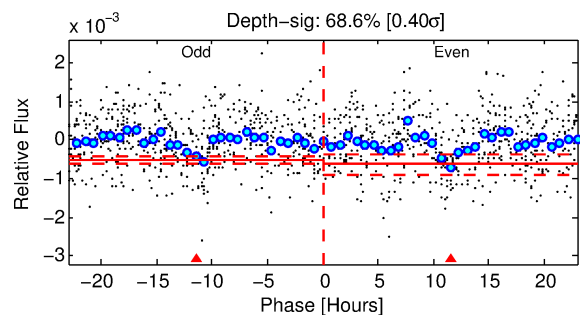
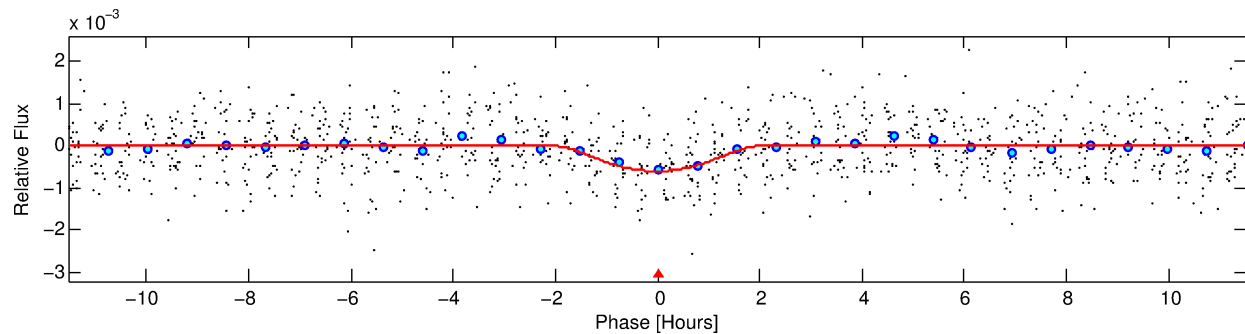
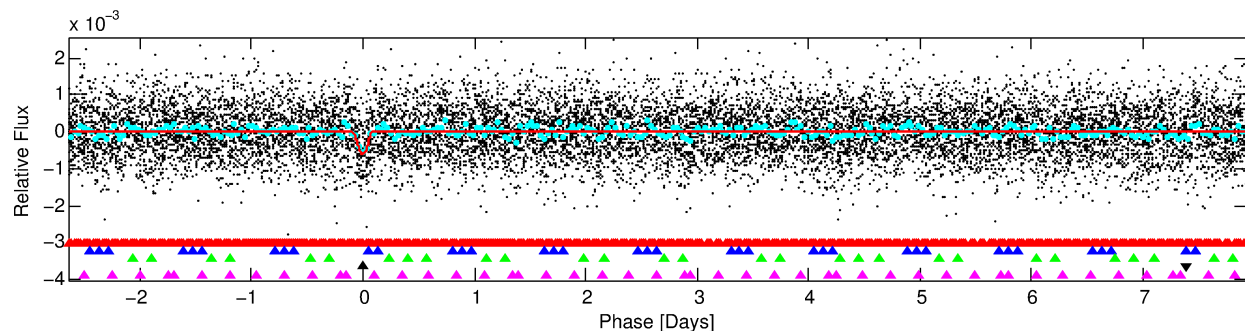
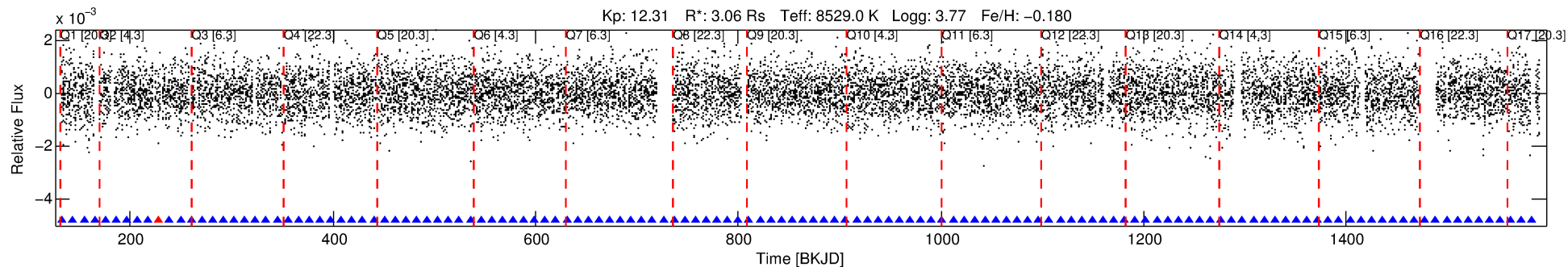
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005651181-04

No Significant Match Found

DV One-Page Summary

KIC: 5651181 Candidate: 4 of 5 Period: 10.586 d



DV Fit Results:

Period = 10.58598 [0.00016] d
Epoch = 133.2523 [0.0116] BKJD
Rp/R* = 0.0403 [0.1469]
a/R* = 6.31 [6.17]
b = 1.00 [0.23]
Seff = 3136.65 [2142.45]
Teff = 1908 [326] K
Rp = 13.48 [49.49] Re
a = 0.1192 [0.0498] AU
Ag = 7.51 [55.08] [0.12 σ]
Teffp = 4884 [8920] K [0.33 σ]

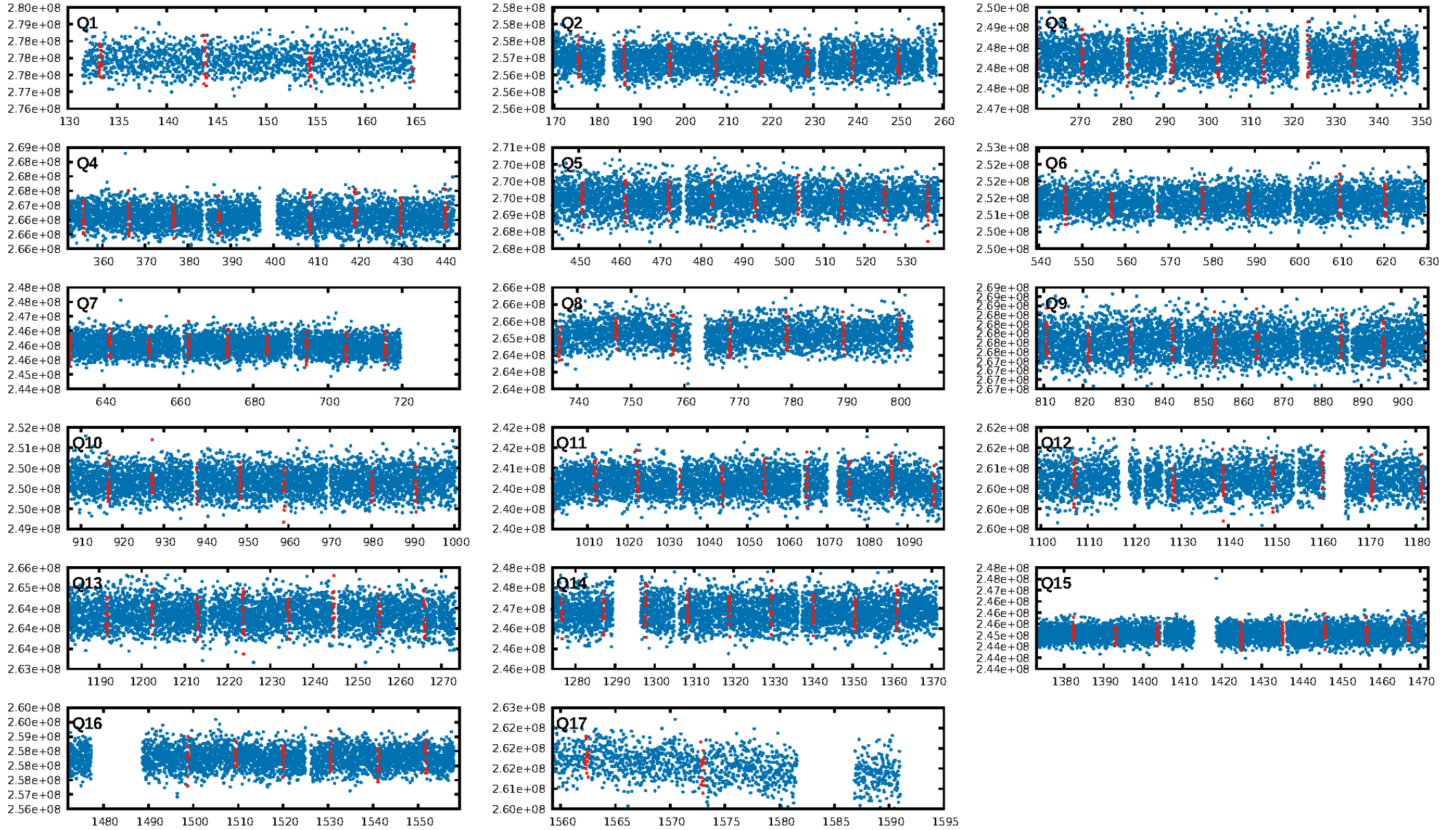
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.42 σ]
LongPeriod-sig: 100.0% [96.63 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.97 [39/40]
GhostDiagnostic-chr: -1.905
Centroid-sig: 95.5%
Centroid-so: 0.381 arcsec [2.54 σ]
OotOffset-rm: 0.245 arcsec [0.76 σ]
KicOffset-rm: 0.152 arcsec [0.23 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.75 [12/16]
DiffImageOverlap-fno: 0.59 [10/17]

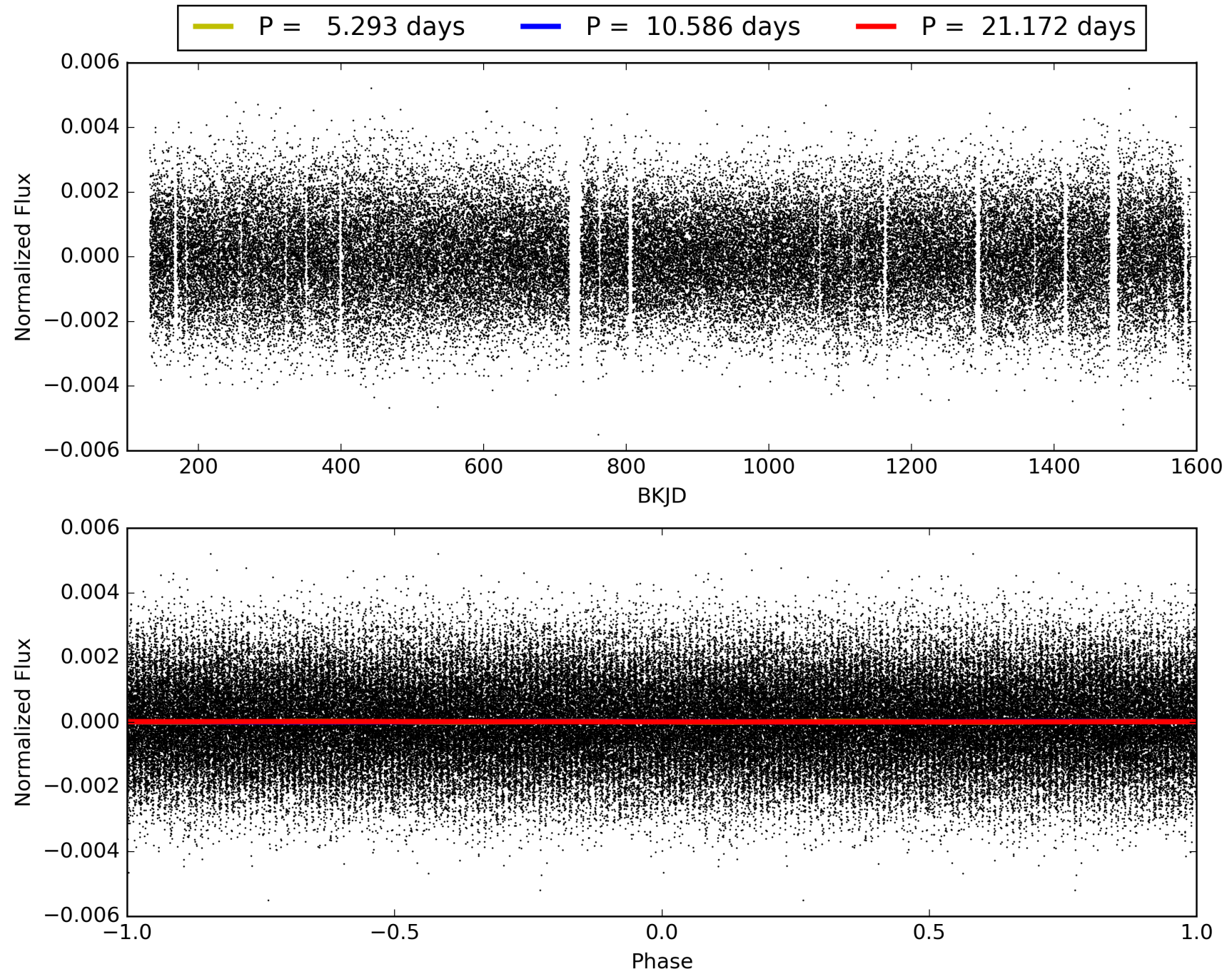
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:58:55 Z

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

TCE 005651181-04, PDC Light Curves

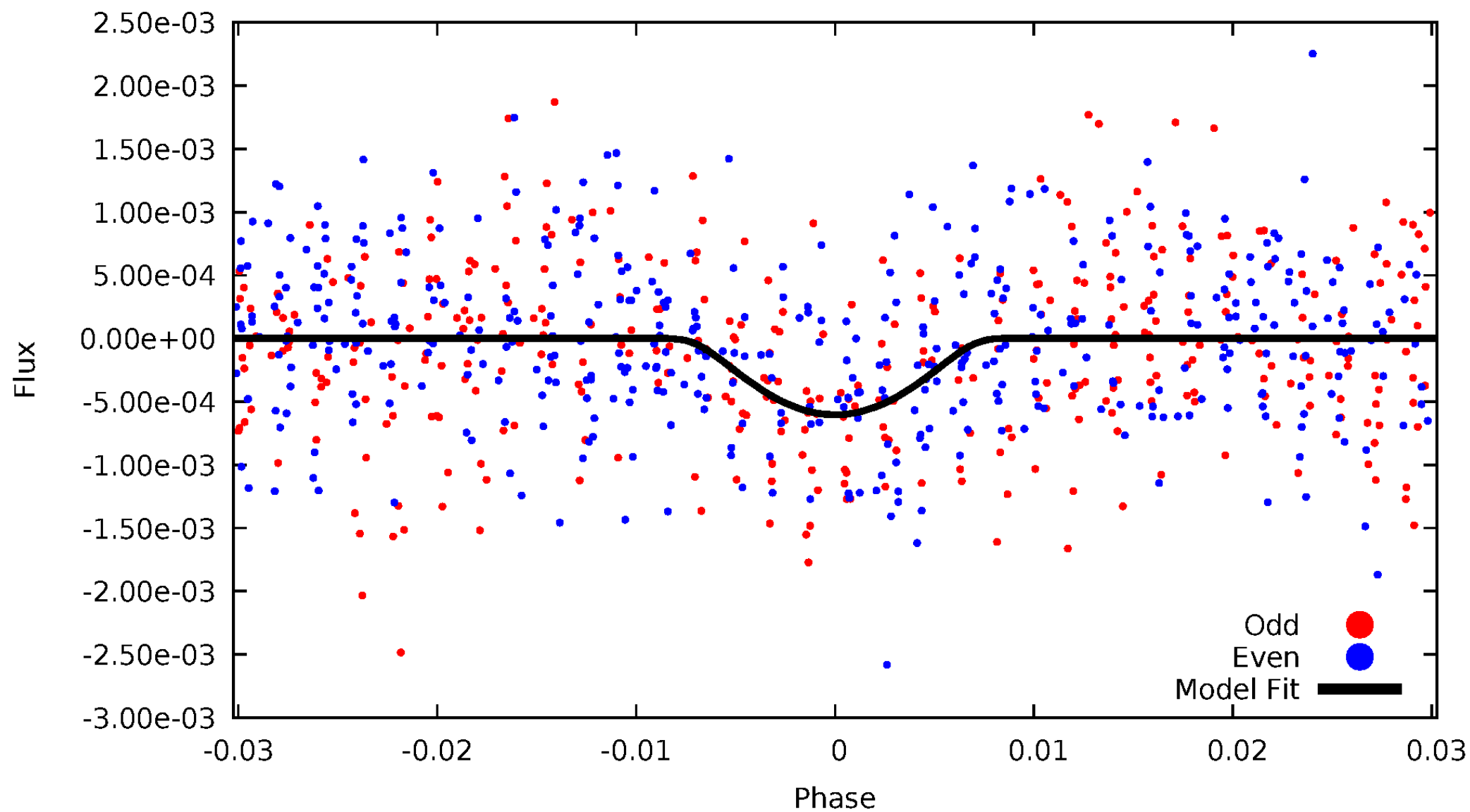


TCE 005651181-04



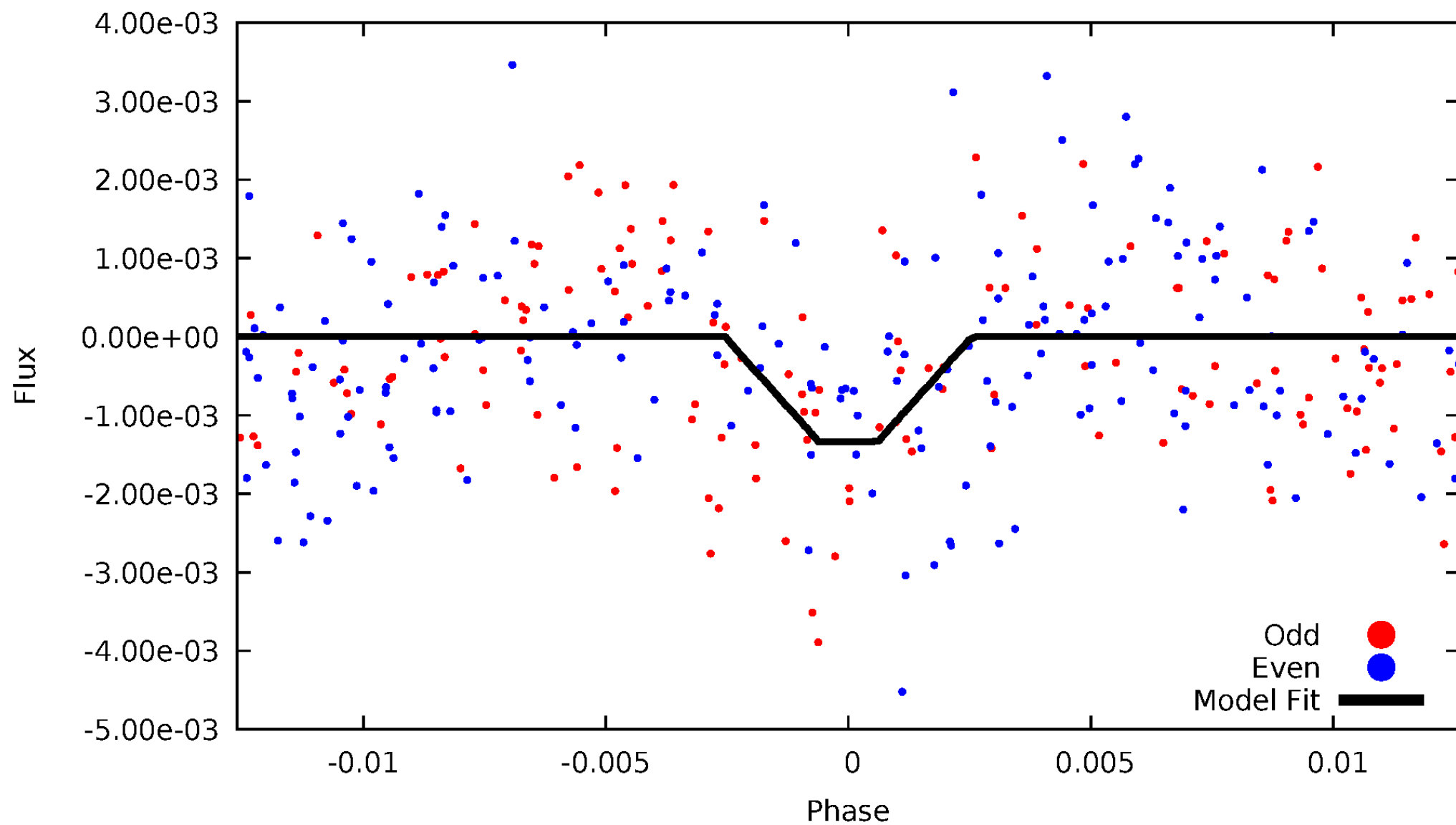
DV Odd/Even

TCE 005651181-04



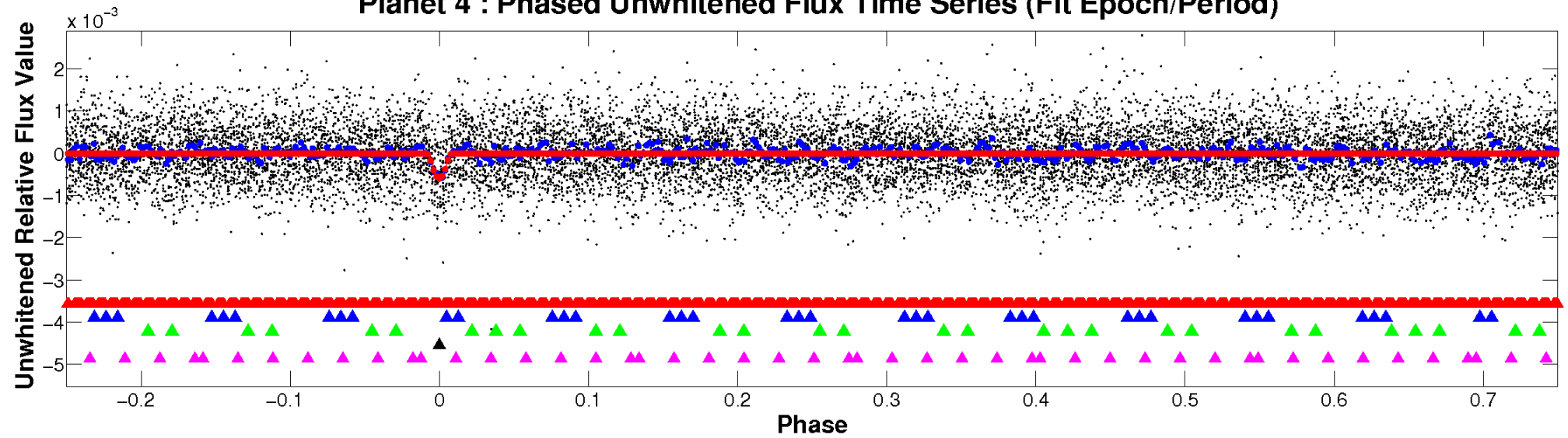
ALT Odd/Even

TCE 005651181-04

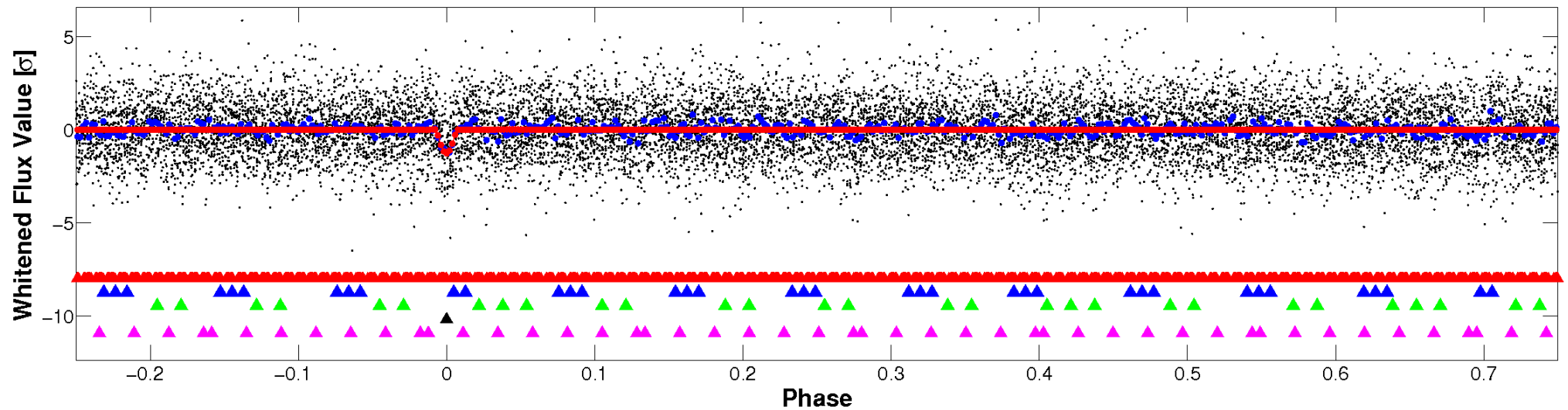


Non-Whitened Vs. Whitened Light Curve

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

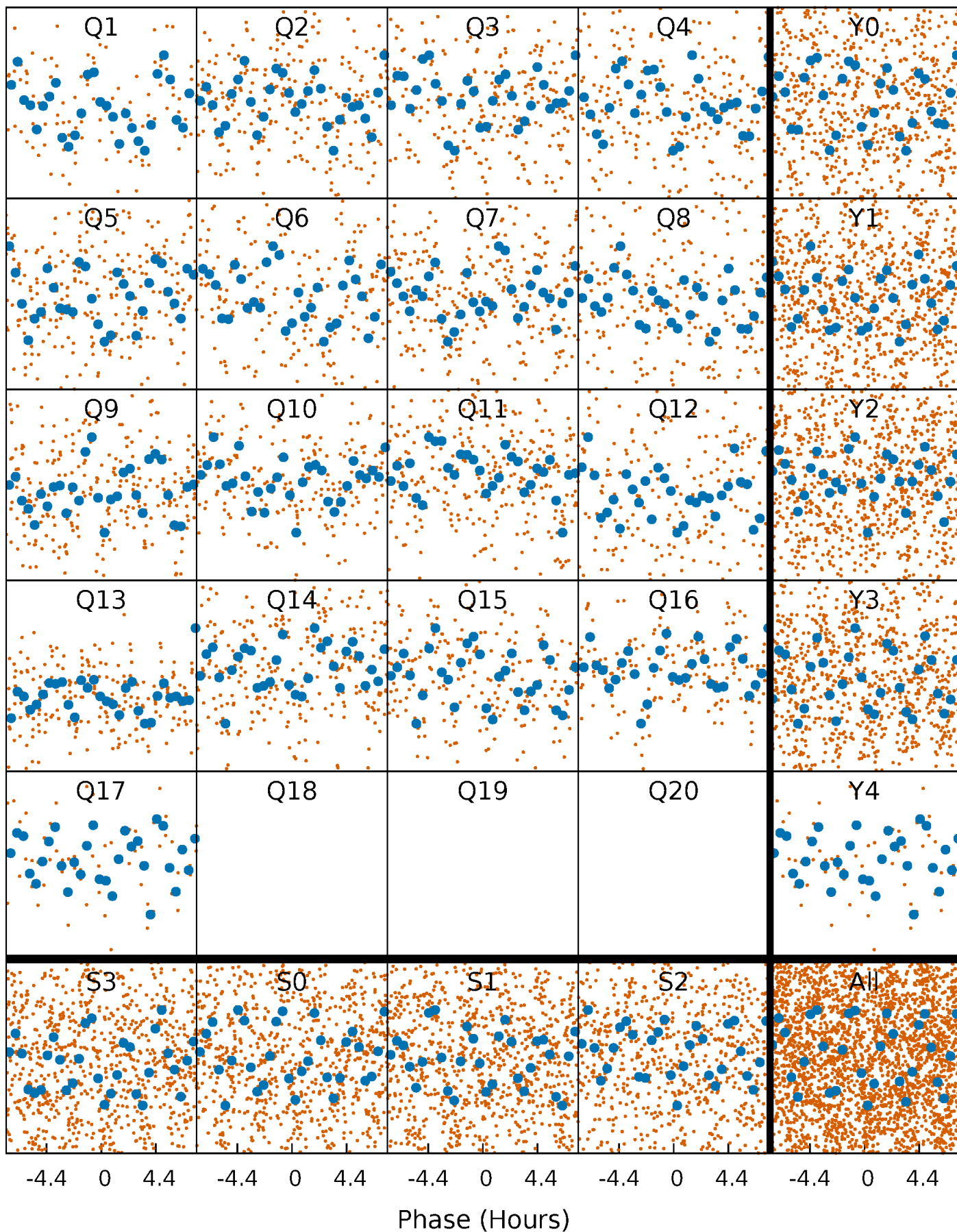


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



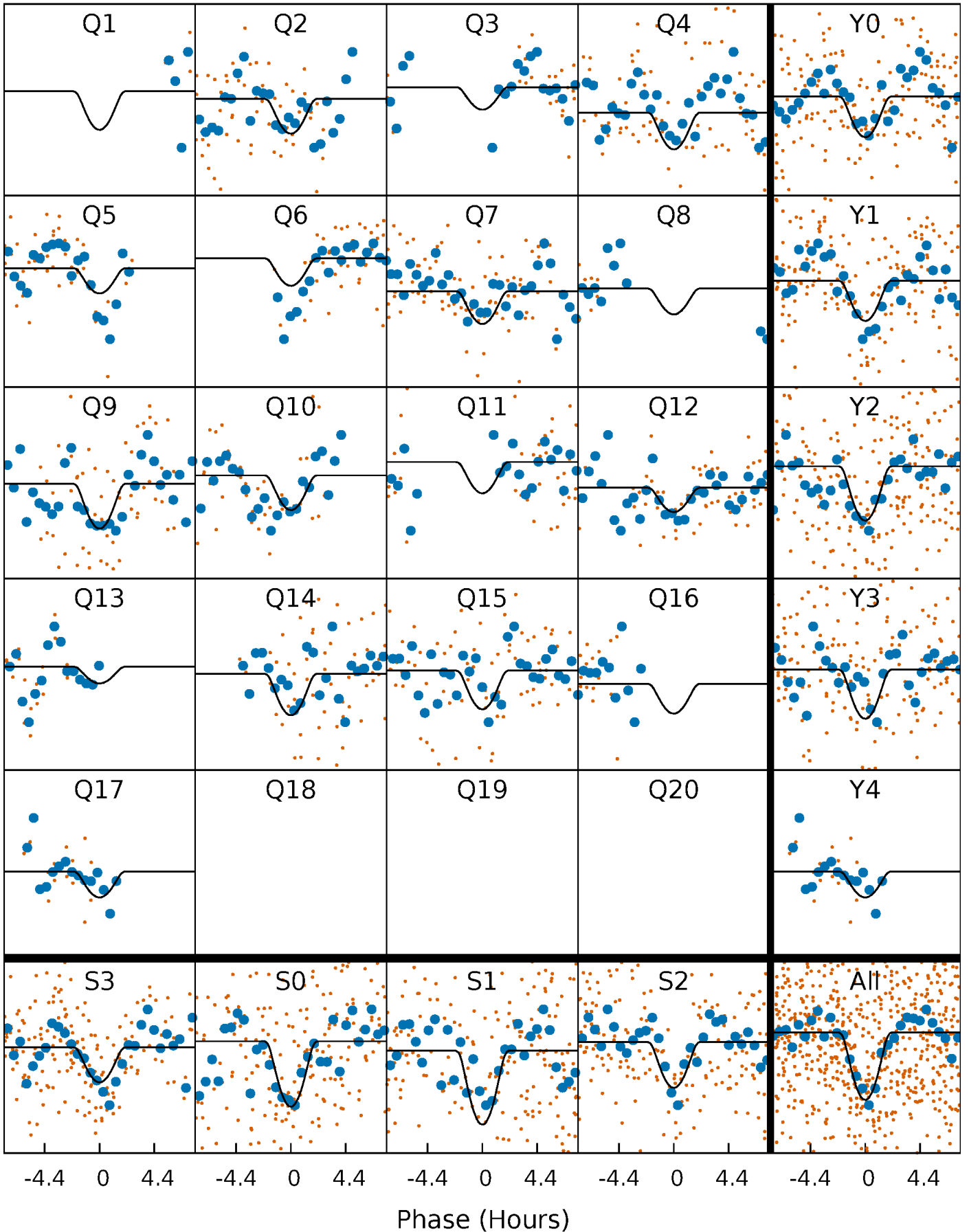
PDC Quarter-Phased Transit Curves

TCE 005651181-04 P= 10.585976 Days $T_0=133.252295$ (BKJD)



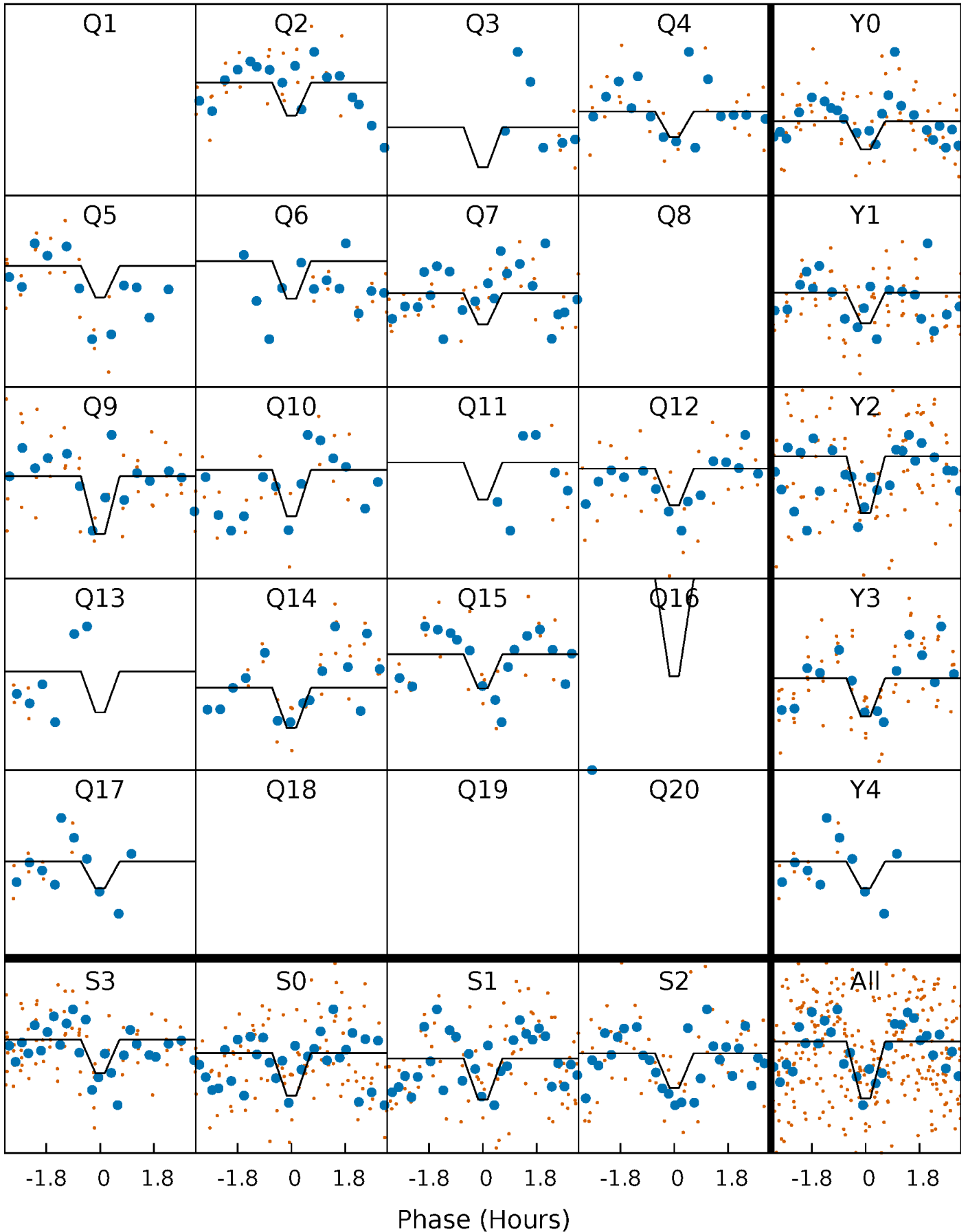
DV Quarter-Phased Transit Curves

TCE 005651181-04 P= 10.585976 Days $T_0=133.252295$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

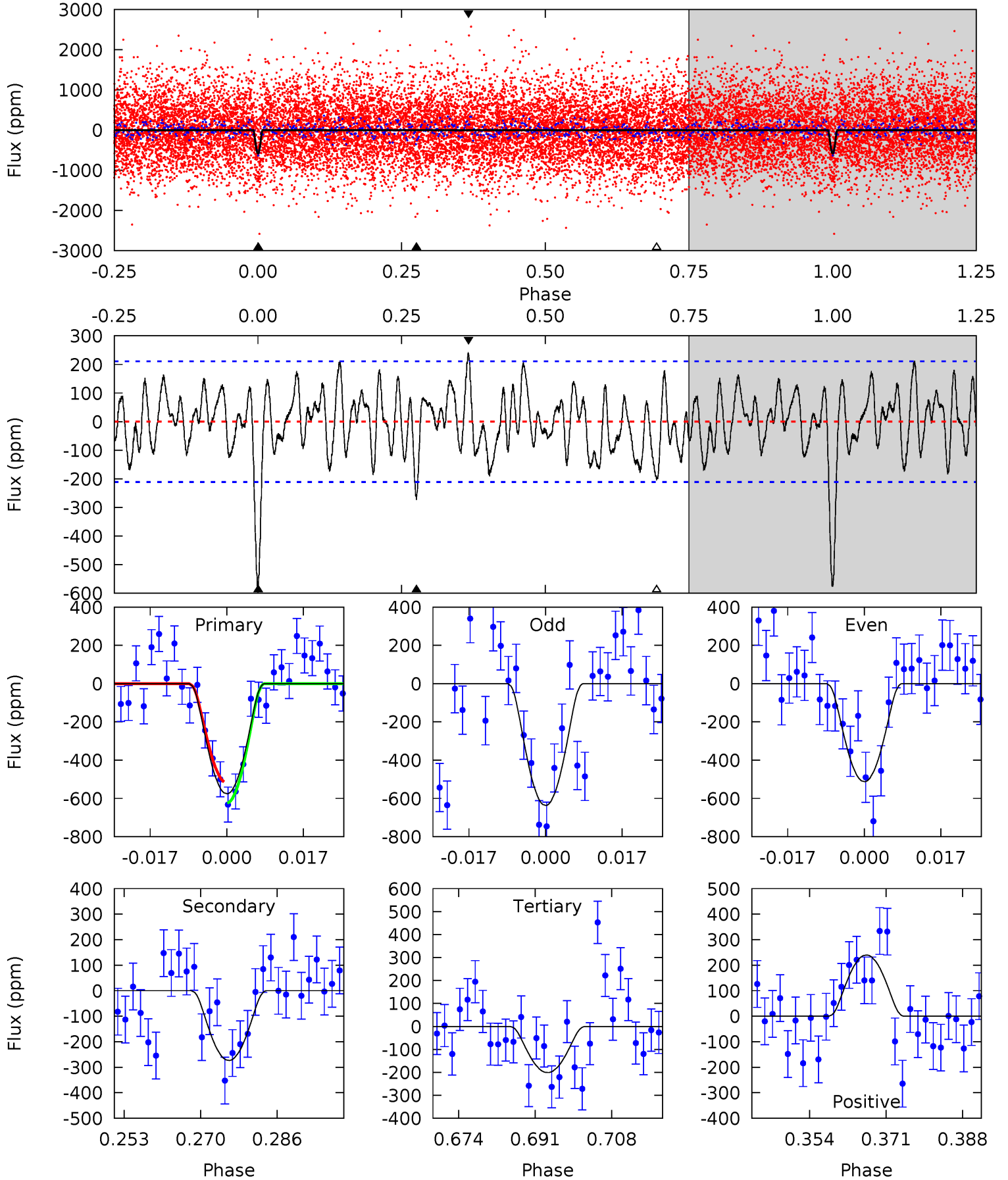
TCE 005651181-04 P= 10.585920 Days $T_0=133.270289$ (BKJD)



DV Model-Shift Uniqueness Test

005651181-04, $P = 10.585976$ Days, $E = 122.666319$ Days

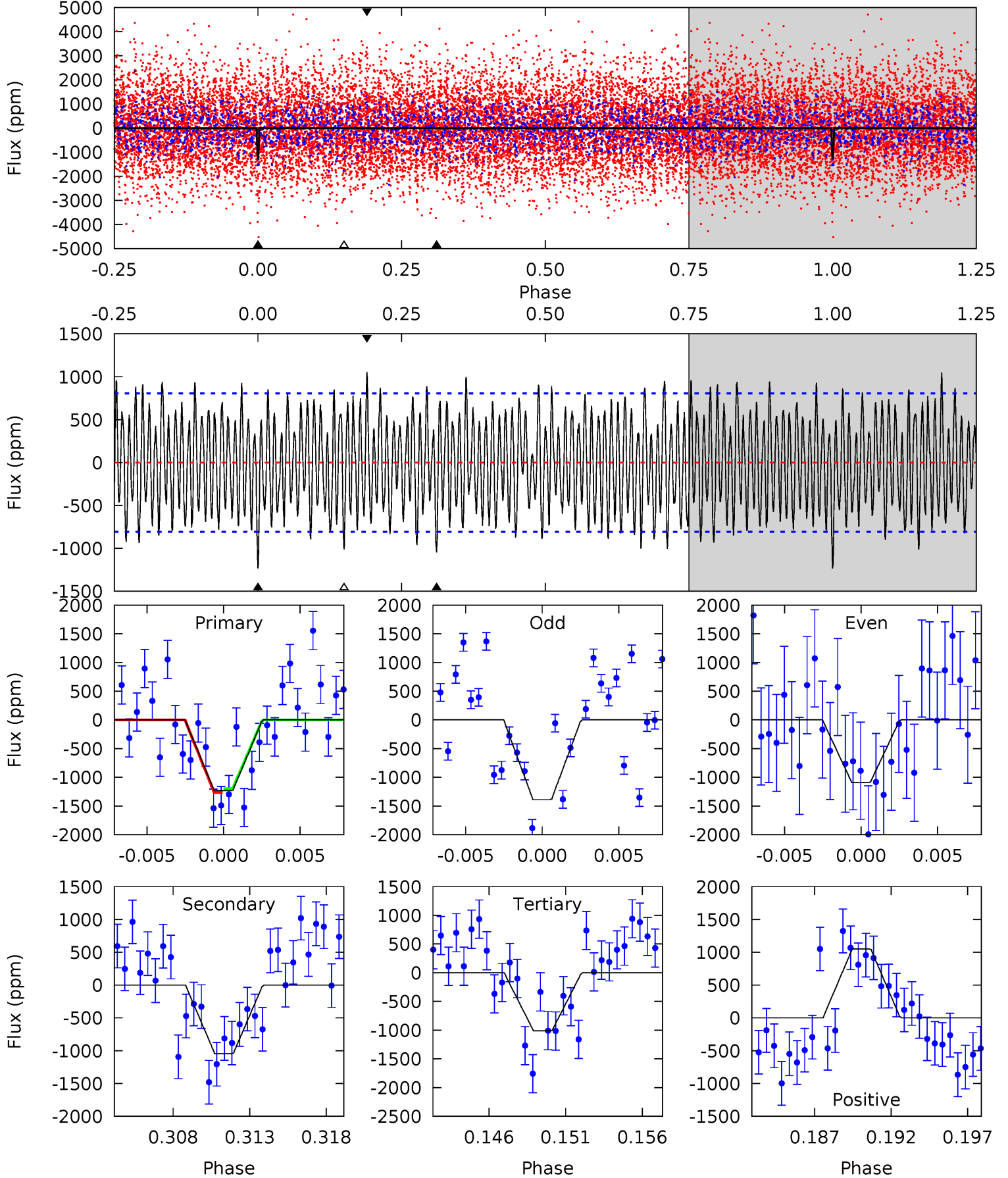
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	6.38	4.69	5.60	4.93	2.39	2.05	8.74	7.84	1.69	0.78	1.44	0.75	0.29	1.28



Alt Model-Shift Uniqueness Test

005651181-04, P = 10.585920 Days, E = 122.684369 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.89	6.69	6.47	6.73	5.16	2.80	2.99	1.42	1.16	0.22	-0.03	0.95	1.18	0.46	0.22



Stellar Parameters For KIC 005651181

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	ρ_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8529^{+236}_{-371}	$3.769^{+0.385}_{-0.137}$	$-0.180^{+0.400}_{-0.350}$	$3.065^{+1.017}_{-1.356}$	$2.017^{+0.437}_{-0.437}$	$0.099^{+0.333}_{-0.046}$
	+3%/-4%	+10%/-4%	+222%/-194%	+33%/-44%	+22%/-22%	+337%/-47%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005651181-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-273 ± 43	$37.88^{+41.36}_{-26.76}$	2595^{+208}_{-287}	3355^{+2130}_{-1173}	$1.488^{+14.200}_{-1.151}$
Alt.	-1046 ± 156	$34.41^{+39.66}_{-24.34}$	2587^{+213}_{-296}	4499^{+4193}_{-1095}	$6.865^{+79.645}_{-5.363}$

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

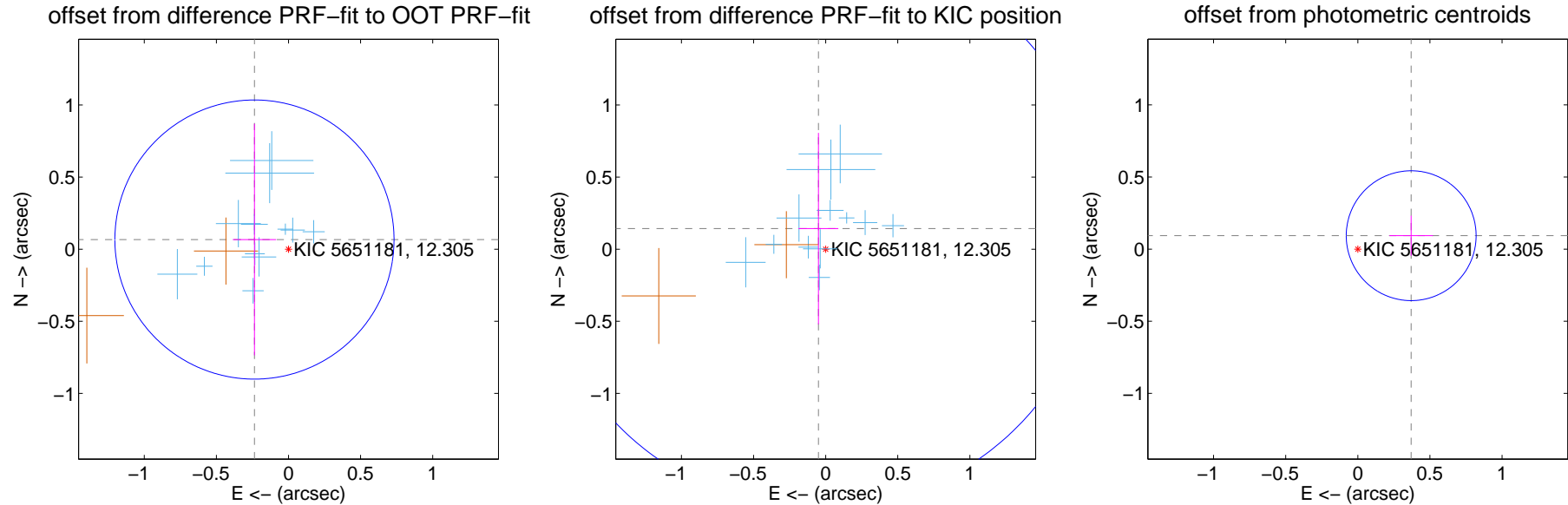
DV Centroid Data

Supplemental centroid analysis for 005651181-04. Kepler magnitude: 12.30. Transit SNR 11.72

There are 12 quarters with good PRF difference image offsets

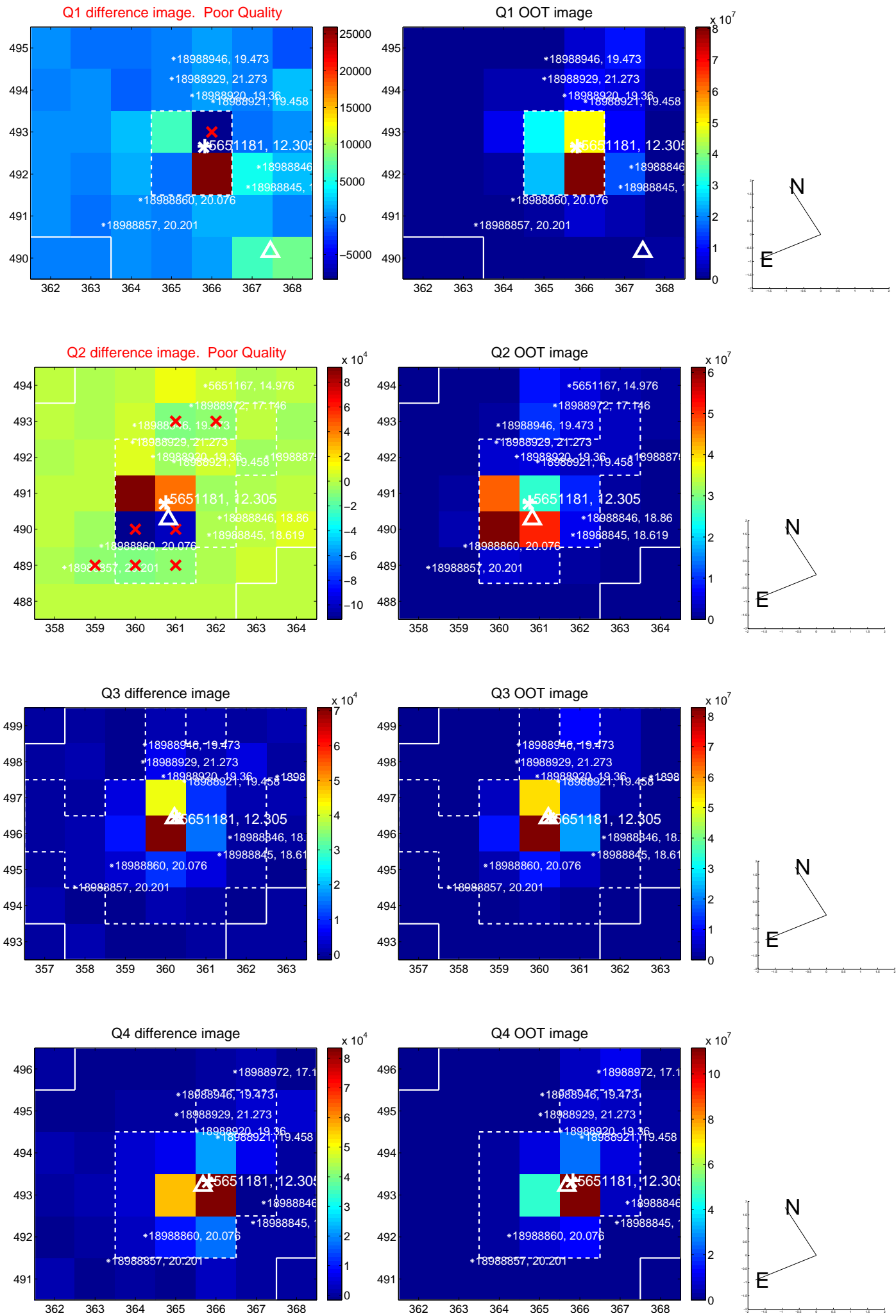
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.245 ± 0.323	0.76	0.236 ± 0.150	0.067 ± 0.803
PRF-fit source offset from KIC position	0.152 ± 0.649	0.23	0.050 ± 0.138	0.143 ± 0.664
photometric centroid source offset	0.38 ± 0.15	2.54	-0.37 ± 0.15	0.09 ± 0.14

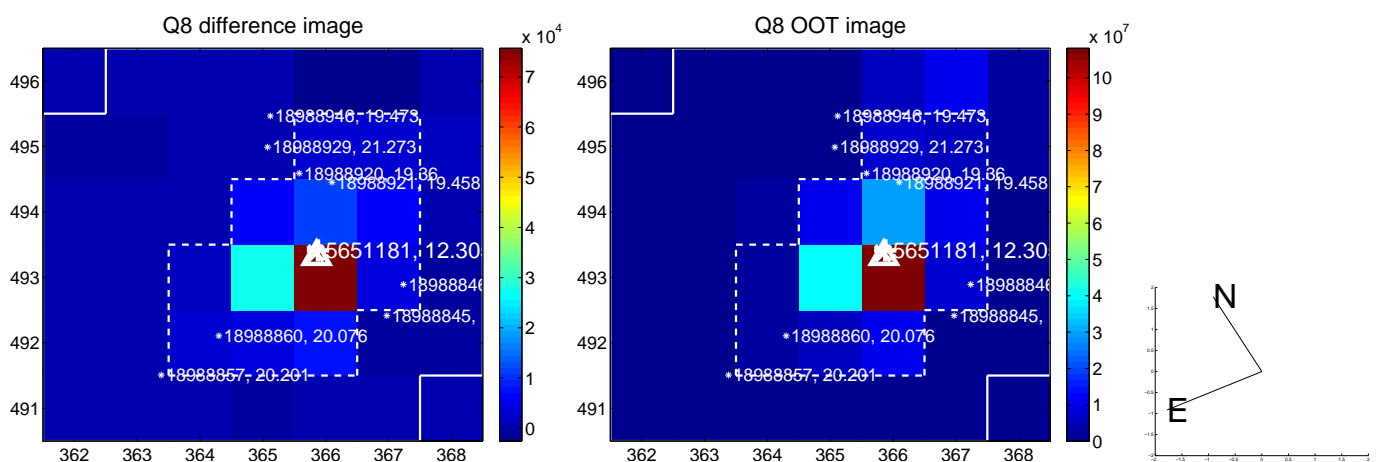
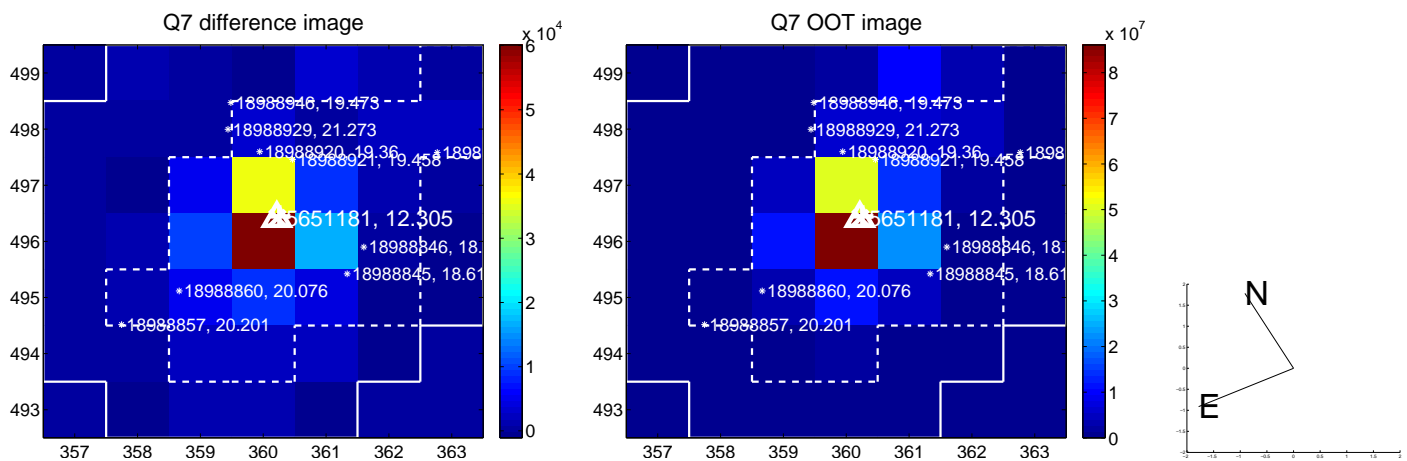
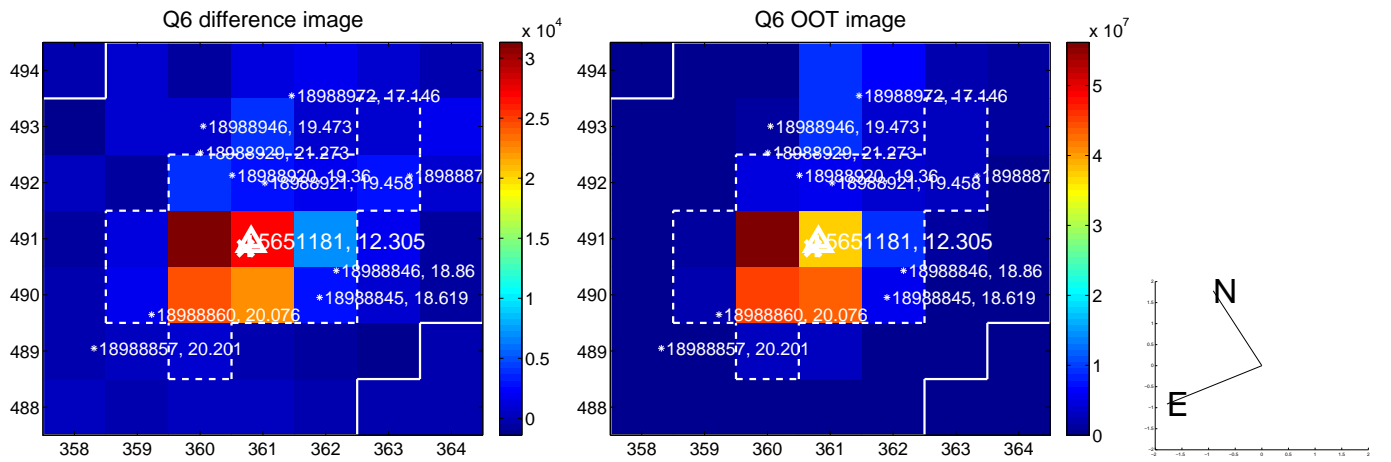
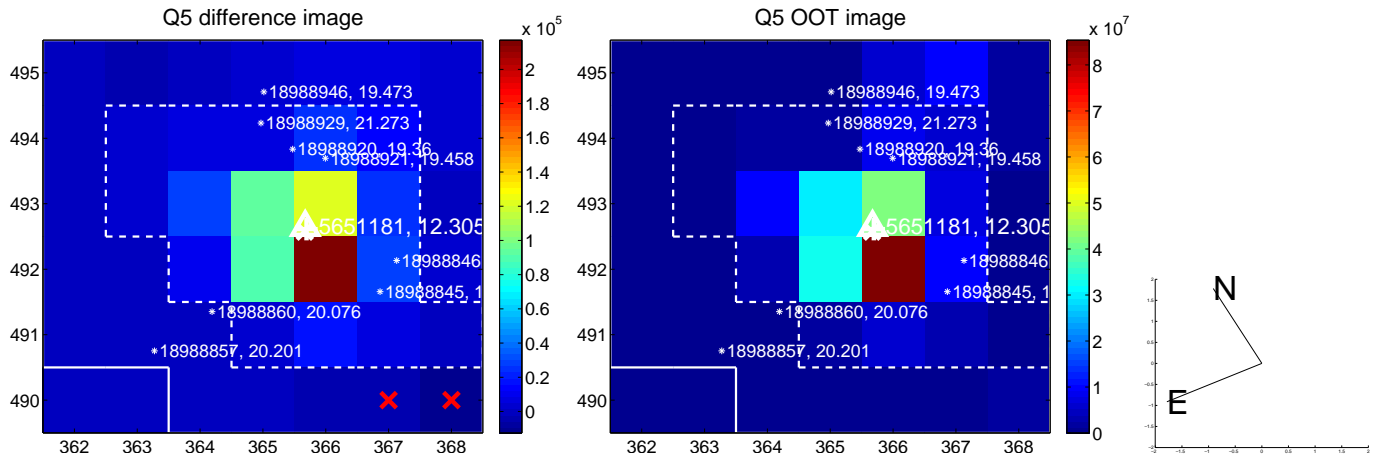


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

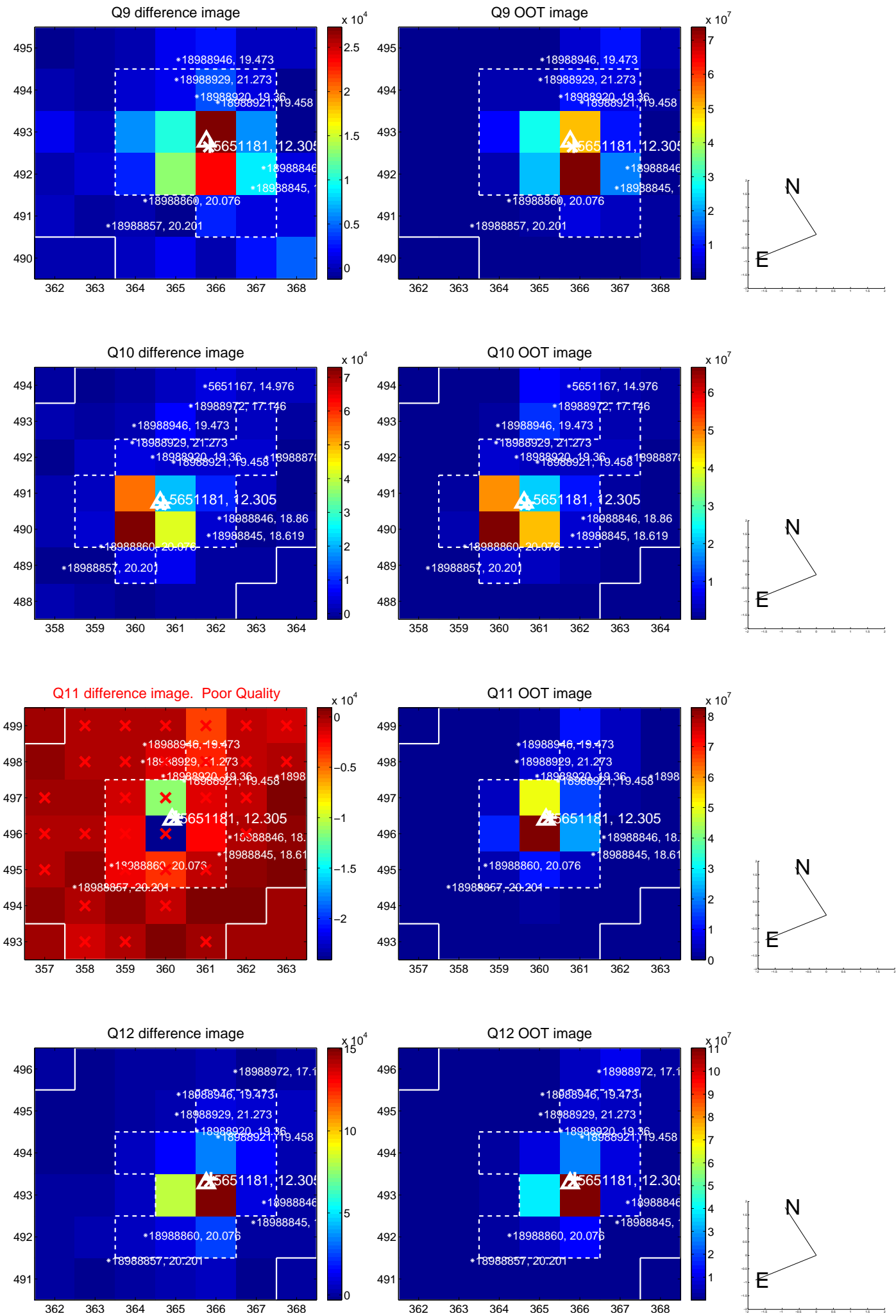
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



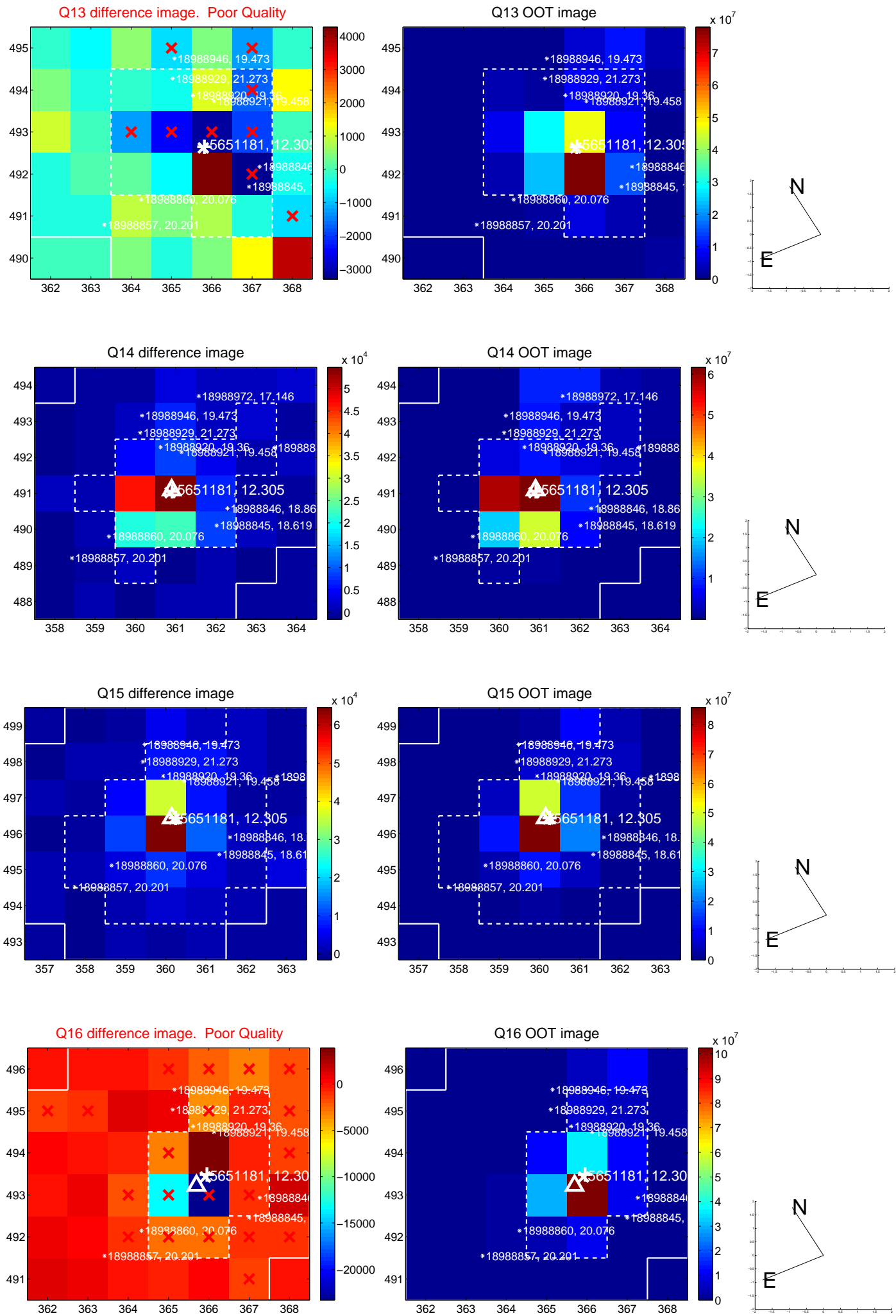
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



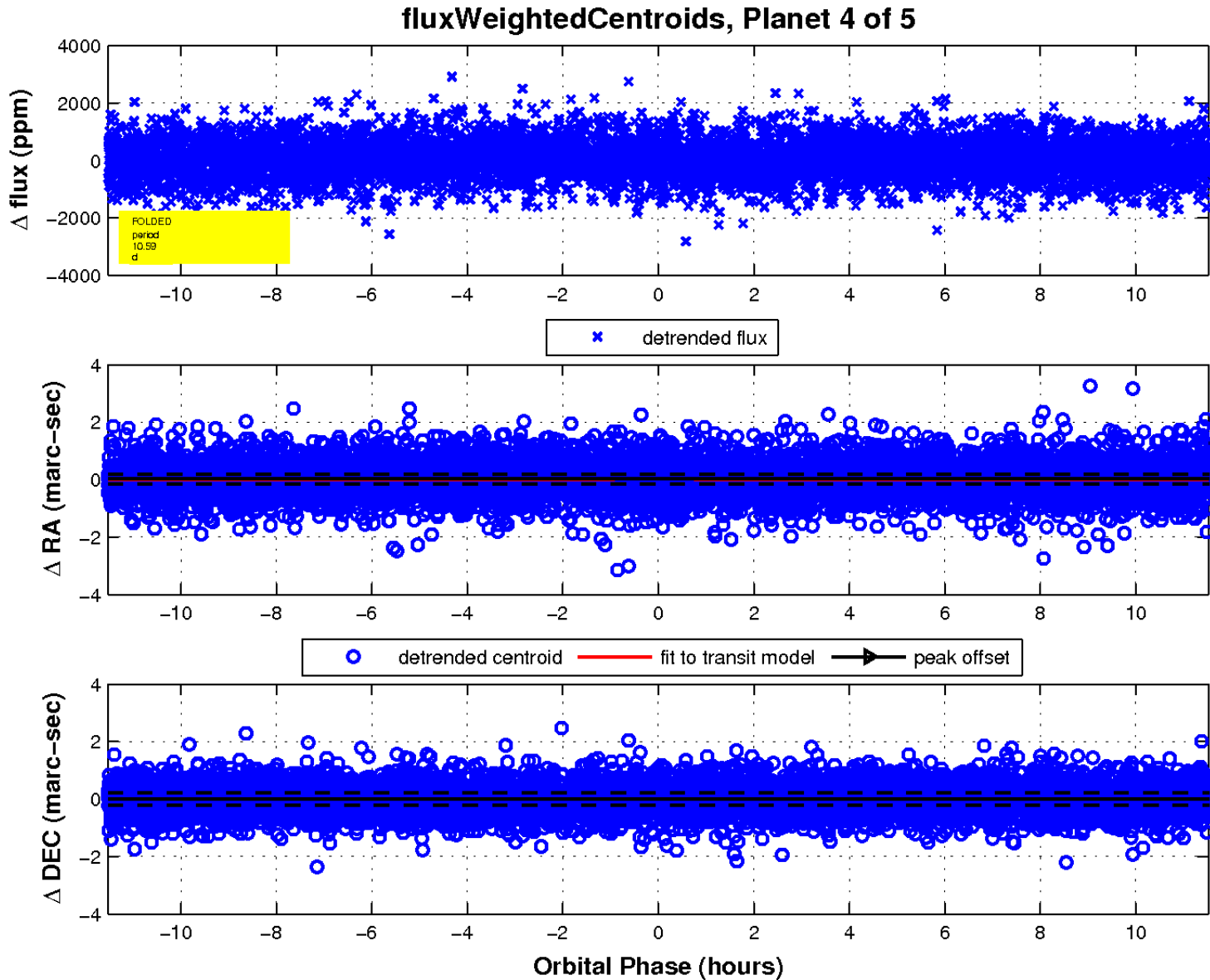
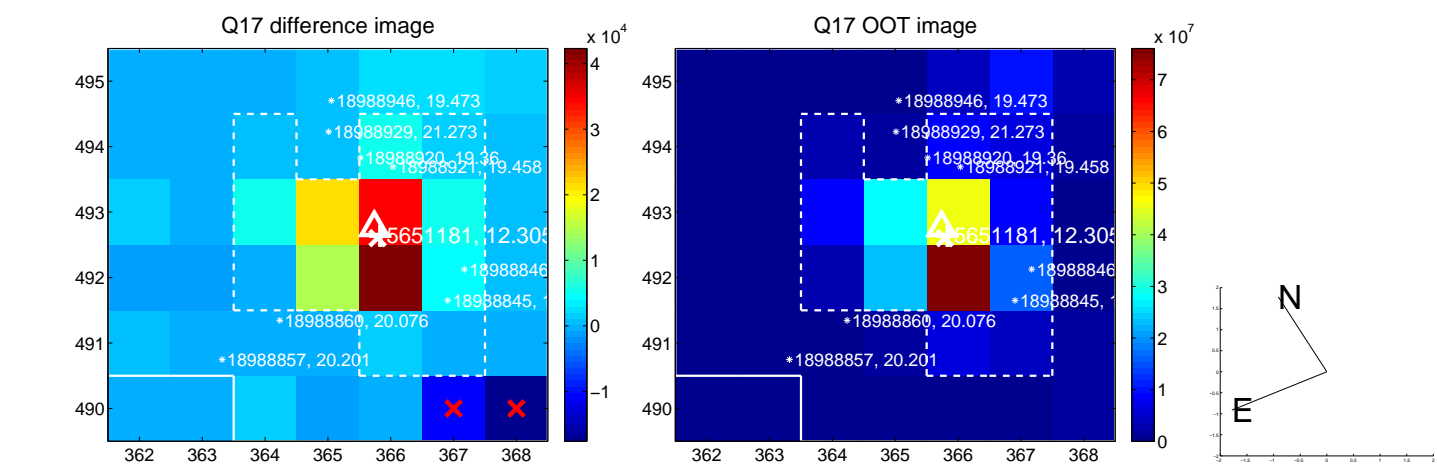
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

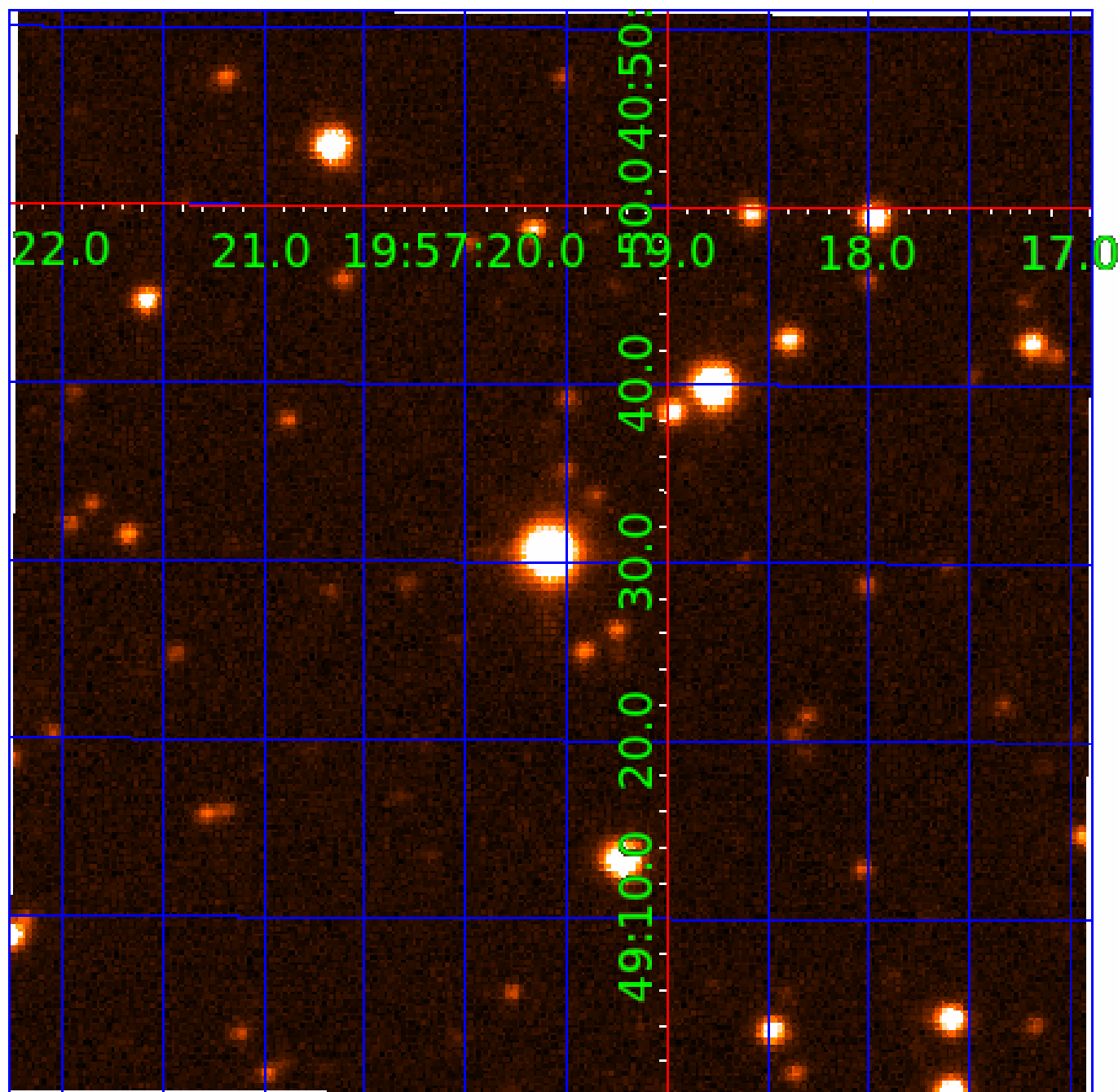


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005651181

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})
005651181-01	OBS	No	1.185583	131.814436	197.7	7.276	16.1	18.6	3.06	8529	5.75	58102.92
005651181-02	OBS	No	39.093056	147.891065	1054.2	1.960	10.3	9.3	3.06	8529	11.35	549.51
005651181-03	OBS	No	48.871451	179.886132	1084.3	2.122	10.6	10.7	3.06	8529	10.68	408.04
005651181-04	OBS	No	10.585976	133.252295	603.5	3.842	10.0	11.7	3.06	8529	13.48	3136.65
005651181-05	OBS	No	30.210162	157.332033	207.6	3.000	10.8	-1.0	3.06	8529	4.48	774.88

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005651181-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005651181-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005651181-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005651181-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005651181-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

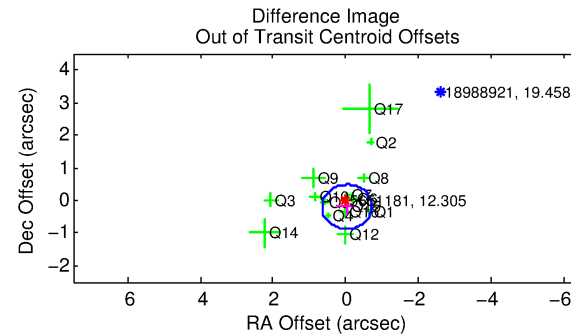
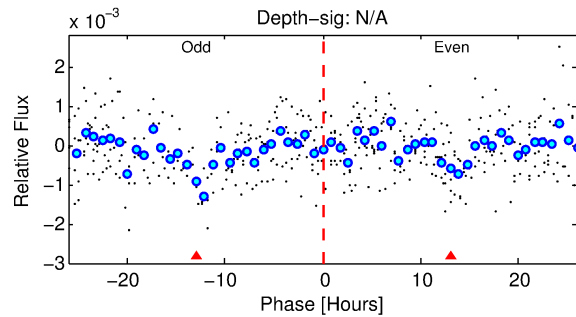
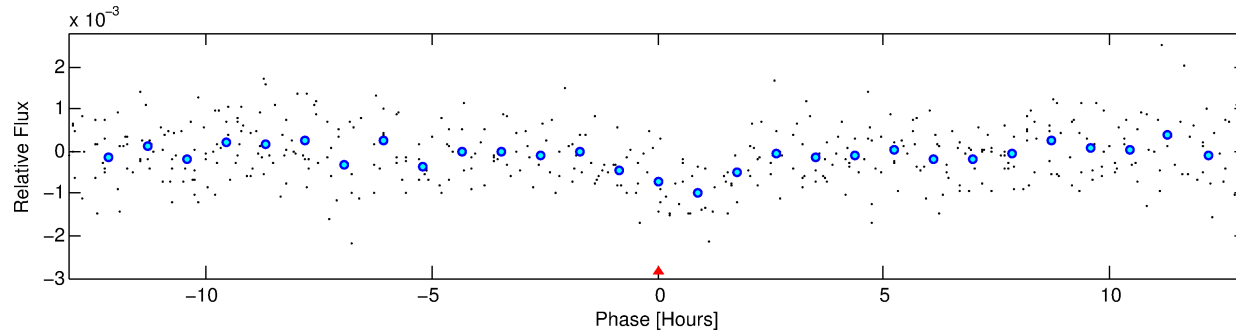
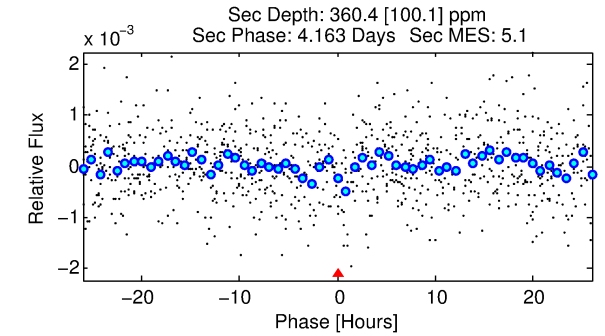
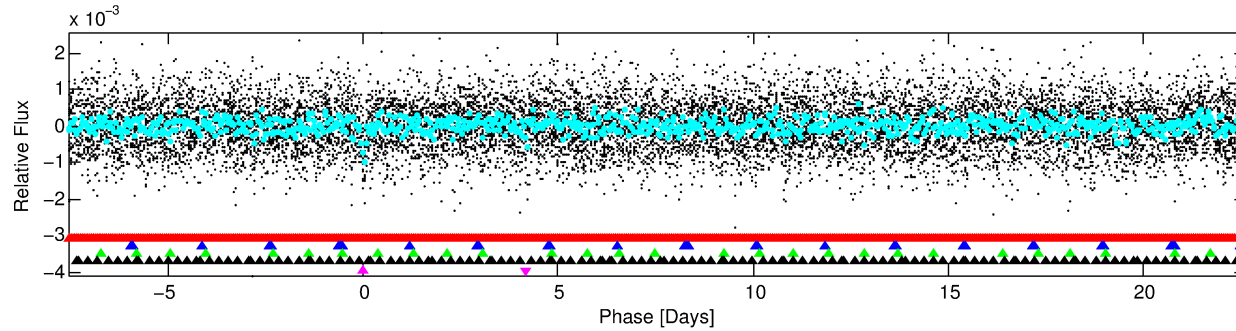
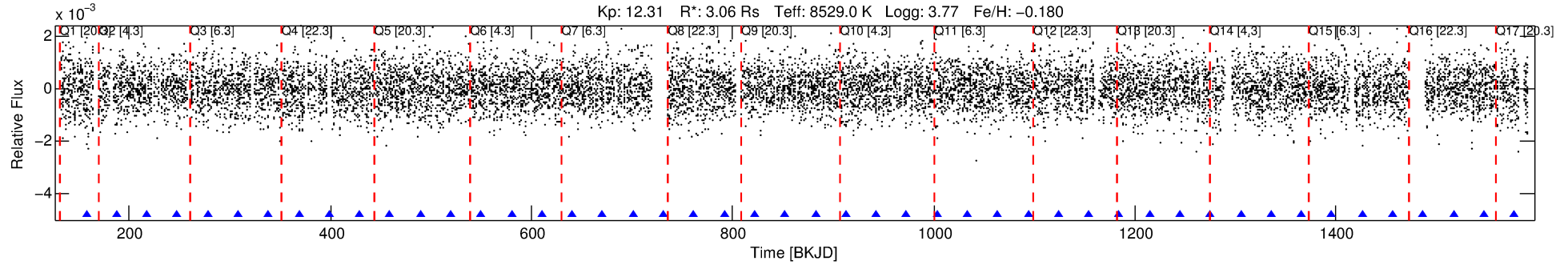
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005651181-05

No Significant Match Found

DV One-Page Summary

KIC: 5651181 Candidate: 5 of 5 Period: 30.210 d



TPS TCE Results:

Period = 30.21016 d
Epoch = 157.3320 BKJD

DV fit results are unavailable

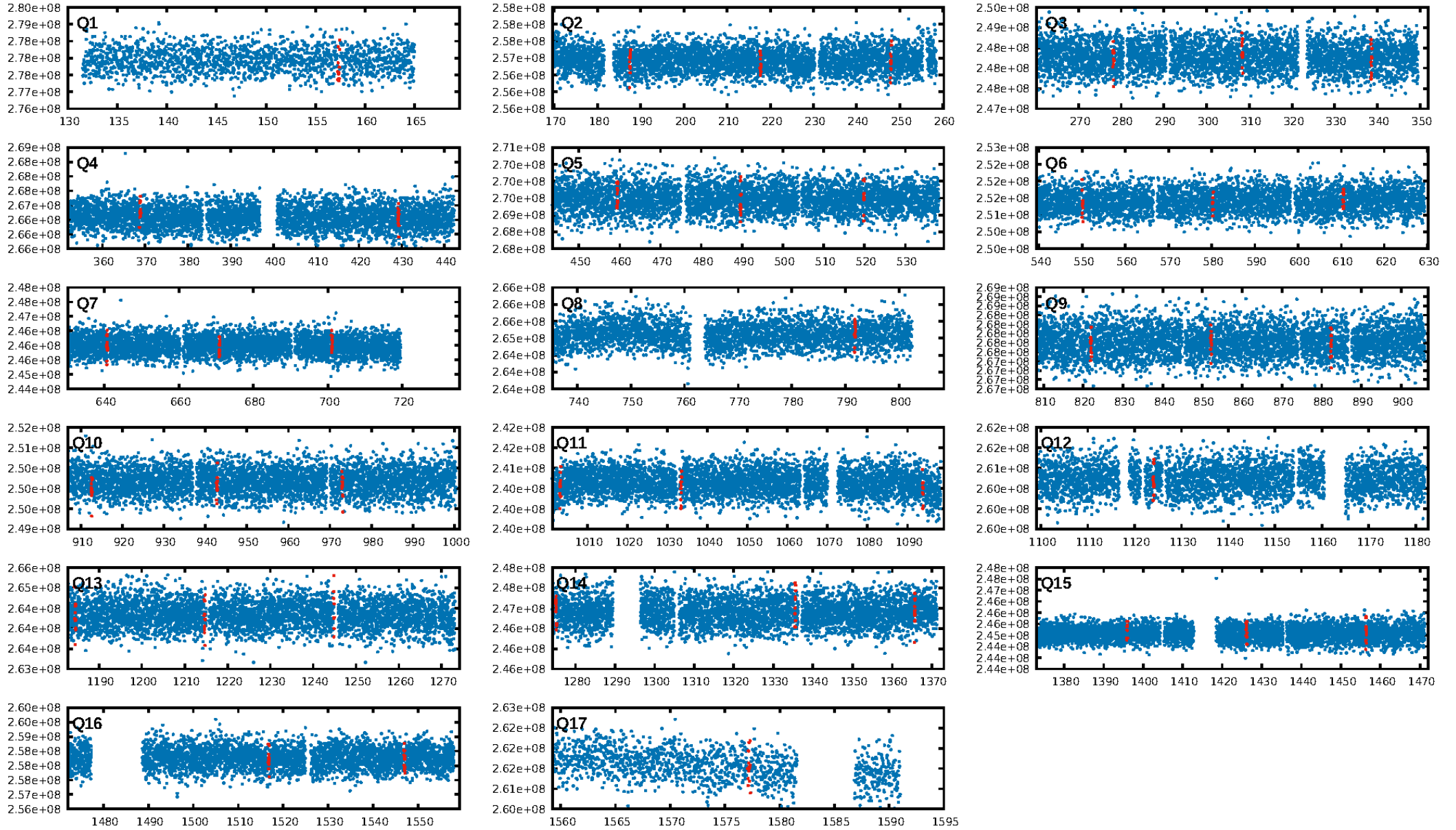
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [96.63σ]
LongPeriod-sig: 100.0% [59.49σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [13/13]
GhostDiagnostic-chr: -2.775
Centroid-sig: 34.4%
Centroid-so: 0.293 arcsec [1.79σ]
OotOffset-rm: 0.196 arcsec [0.86σ]
KicOffset-rm: 0.270 arcsec [1.38σ]
OotOffset-st: 4/3/4/4 [15]
KicOffset-st: 4/3/4/4 [15]
DiffImageQuality-fgm: 0.47 [7/15]
DiffImageOverlap-fno: 0.12 [2/17]

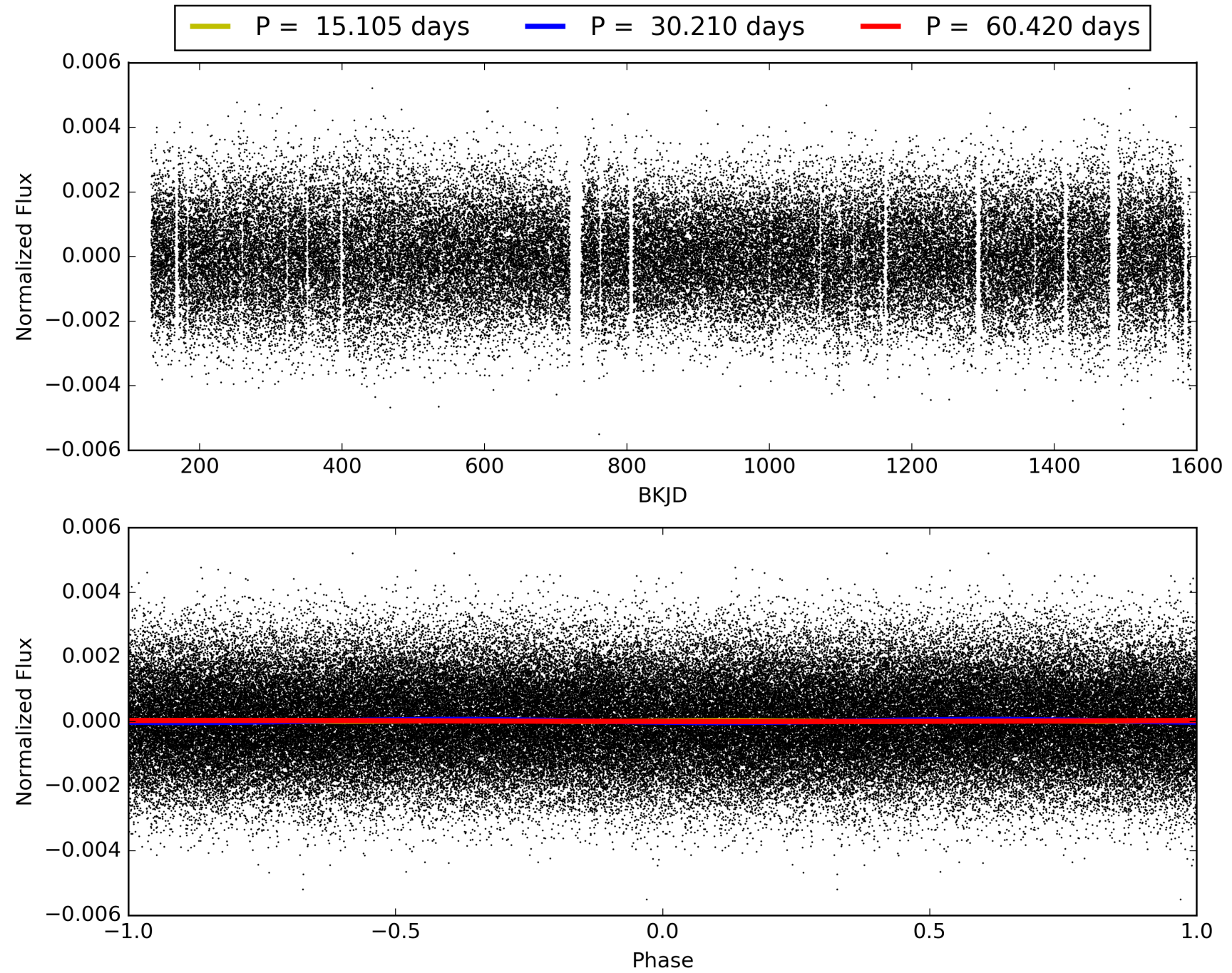
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:58:59 Z

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

TCE 005651181-05, PDC Light Curves

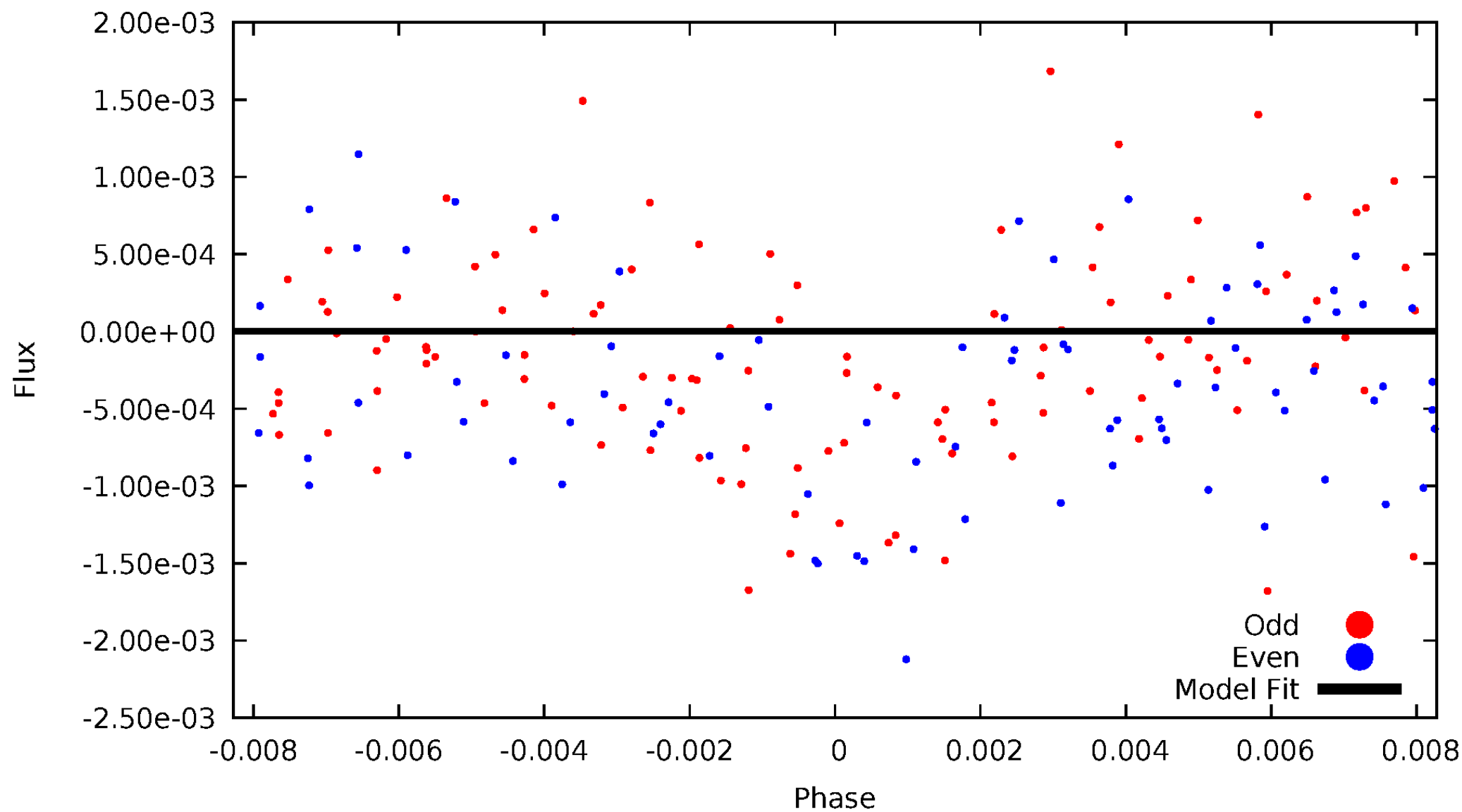


TCE 005651181-05



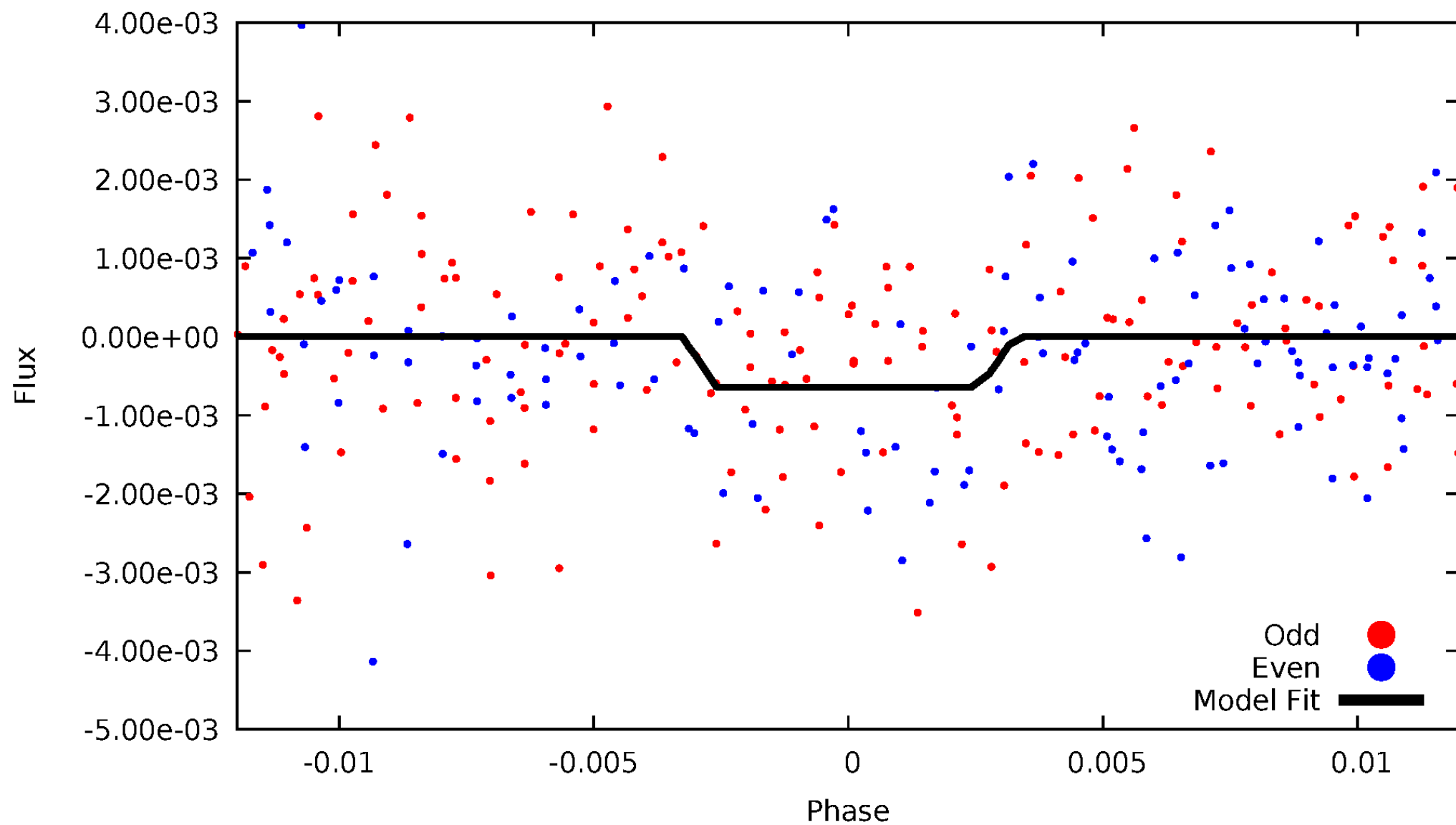
DV Odd/Even

TCE 005651181-05



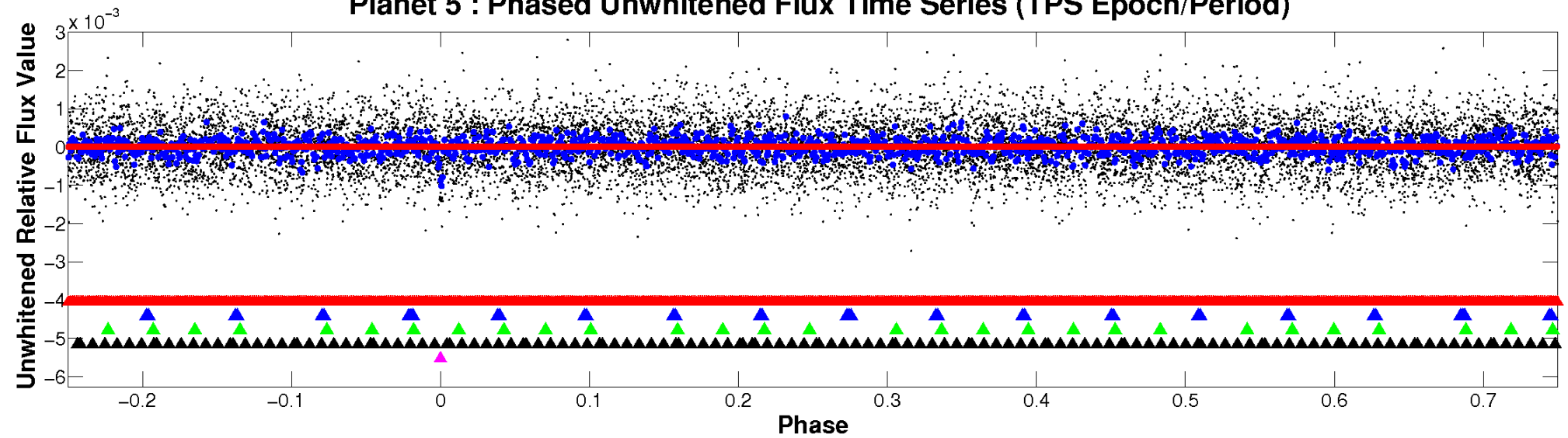
ALT Odd/Even

TCE 005651181-05

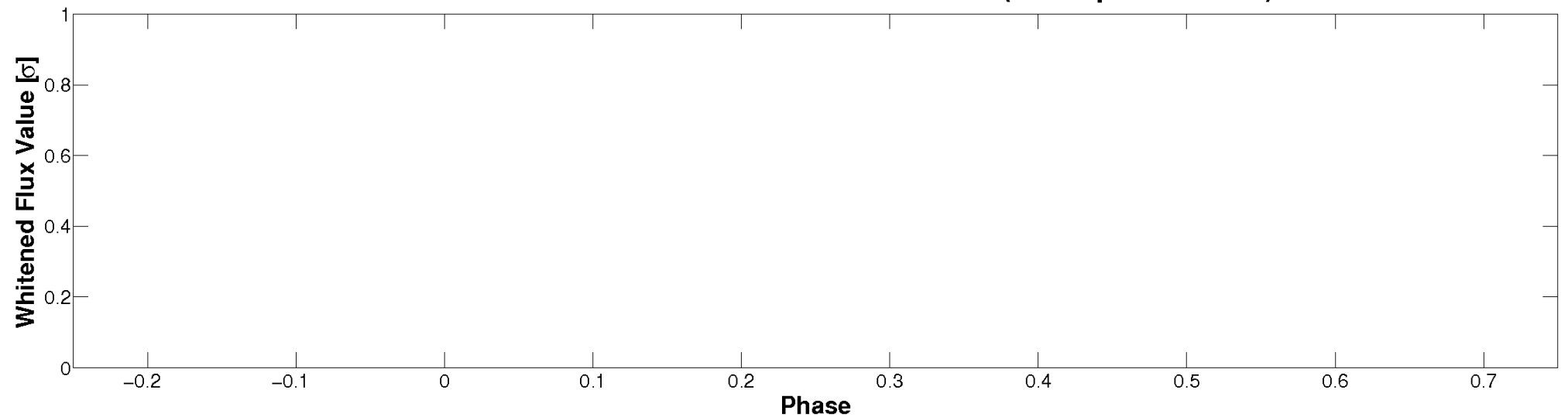


Non-Whitened Vs. Whitened Light Curve

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

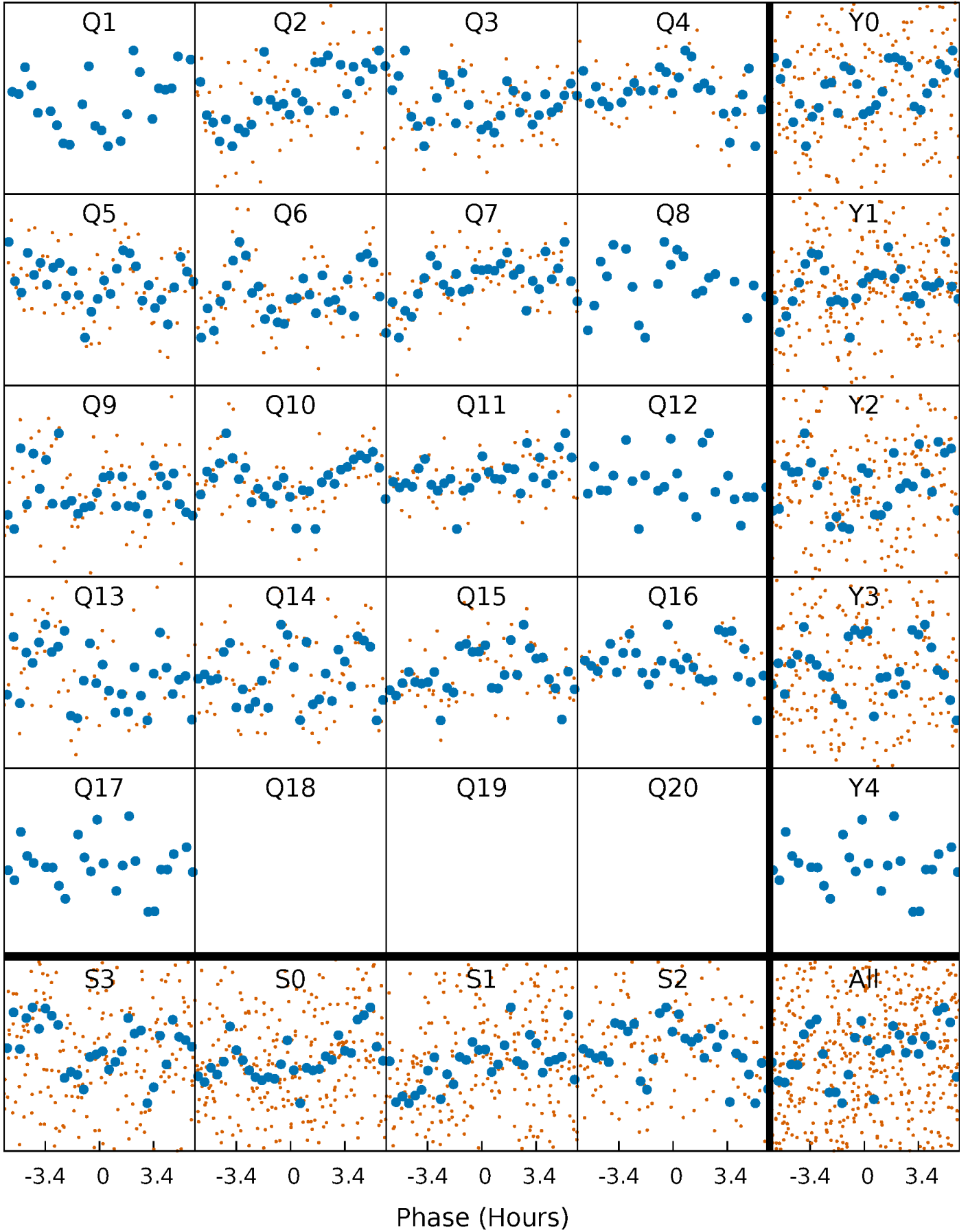


Planet 5 : Phased Whitened Flux Time Series (TPS Epoch/Period)



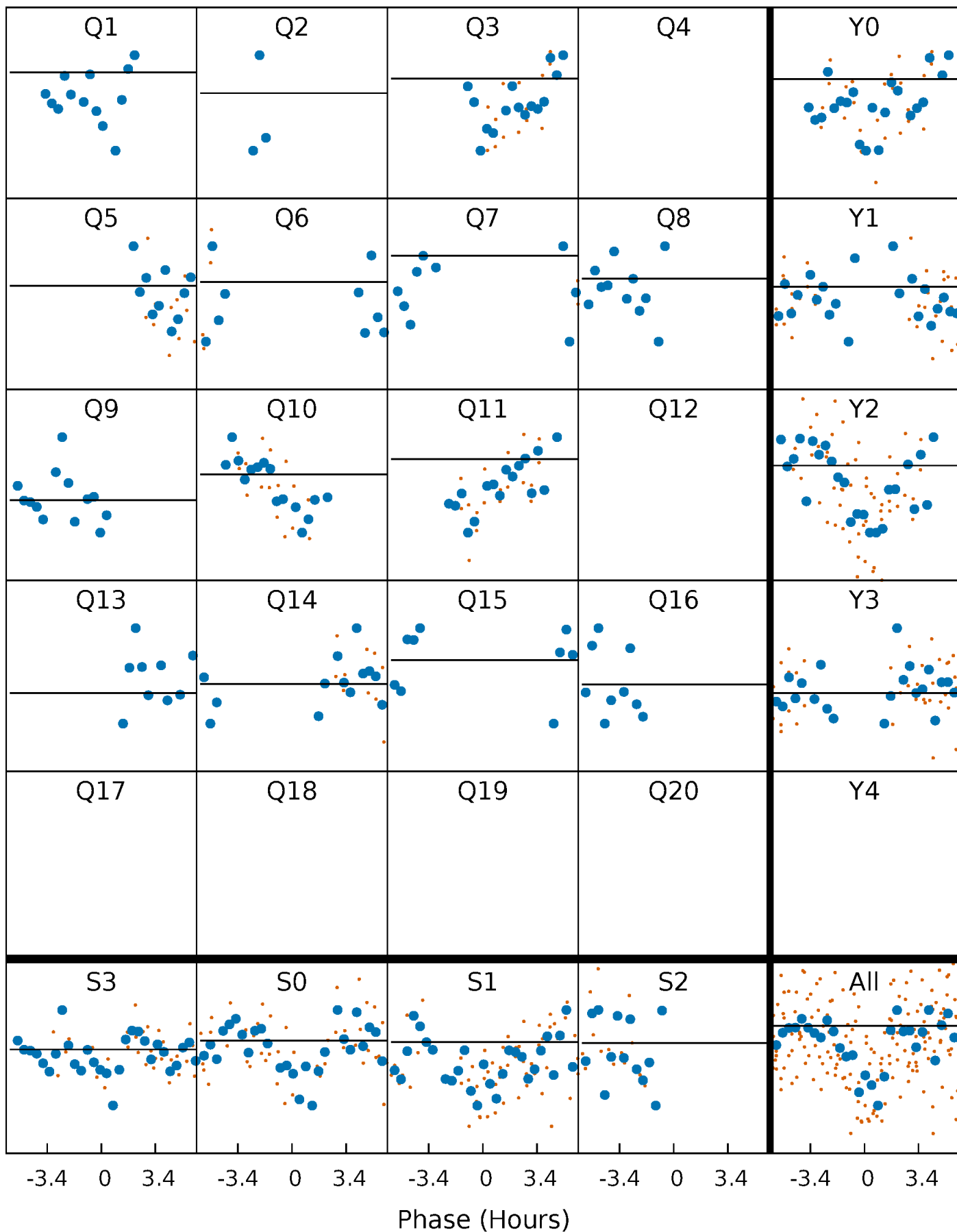
PDC Quarter-Phased Transit Curves

TCE 005651181-05 P= 30.210162 Days $T_0=157.332033$ (BKJD)



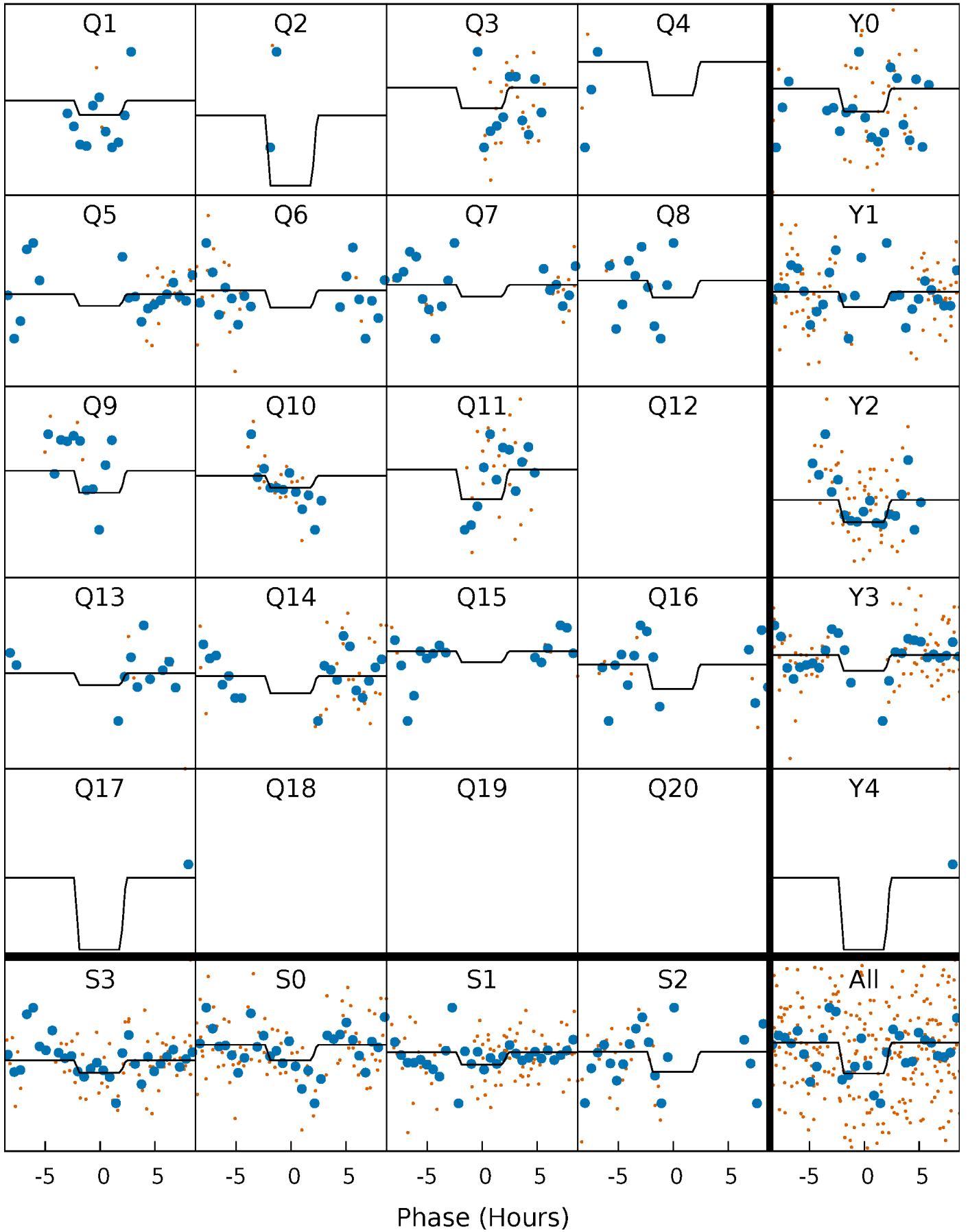
DV Quarter-Phased Transit Curves

TCE 005651181-05 $P = 30.210162$ Days $T_0 = 157.332033$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

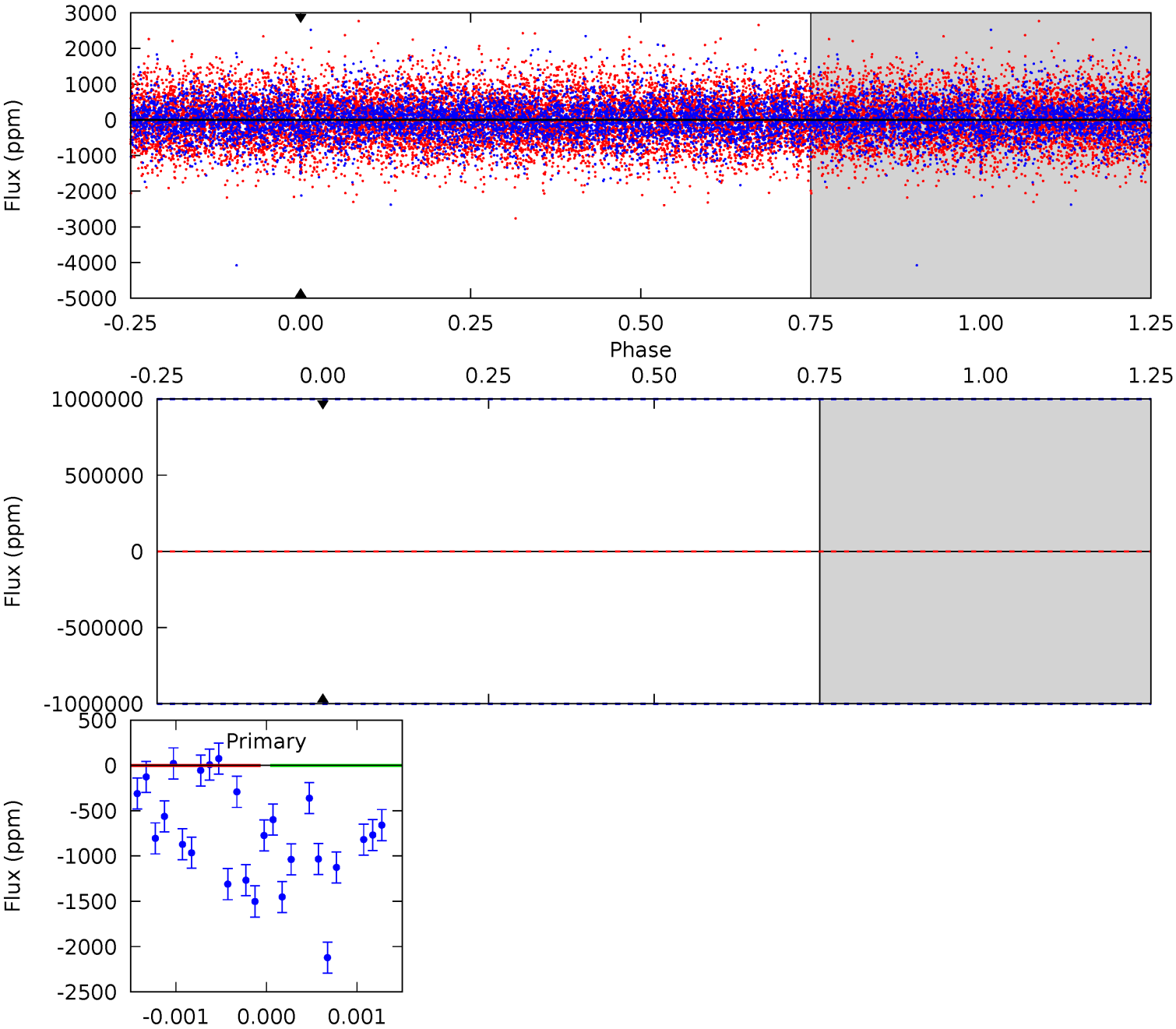
TCE 005651181-05 P= 30.210162 Days $T_0=157.313301$ (BKJD)



DV Model-Shift Uniqueness Test

005651181-05, P = 30.210162 Days, E = 127.121871 Days

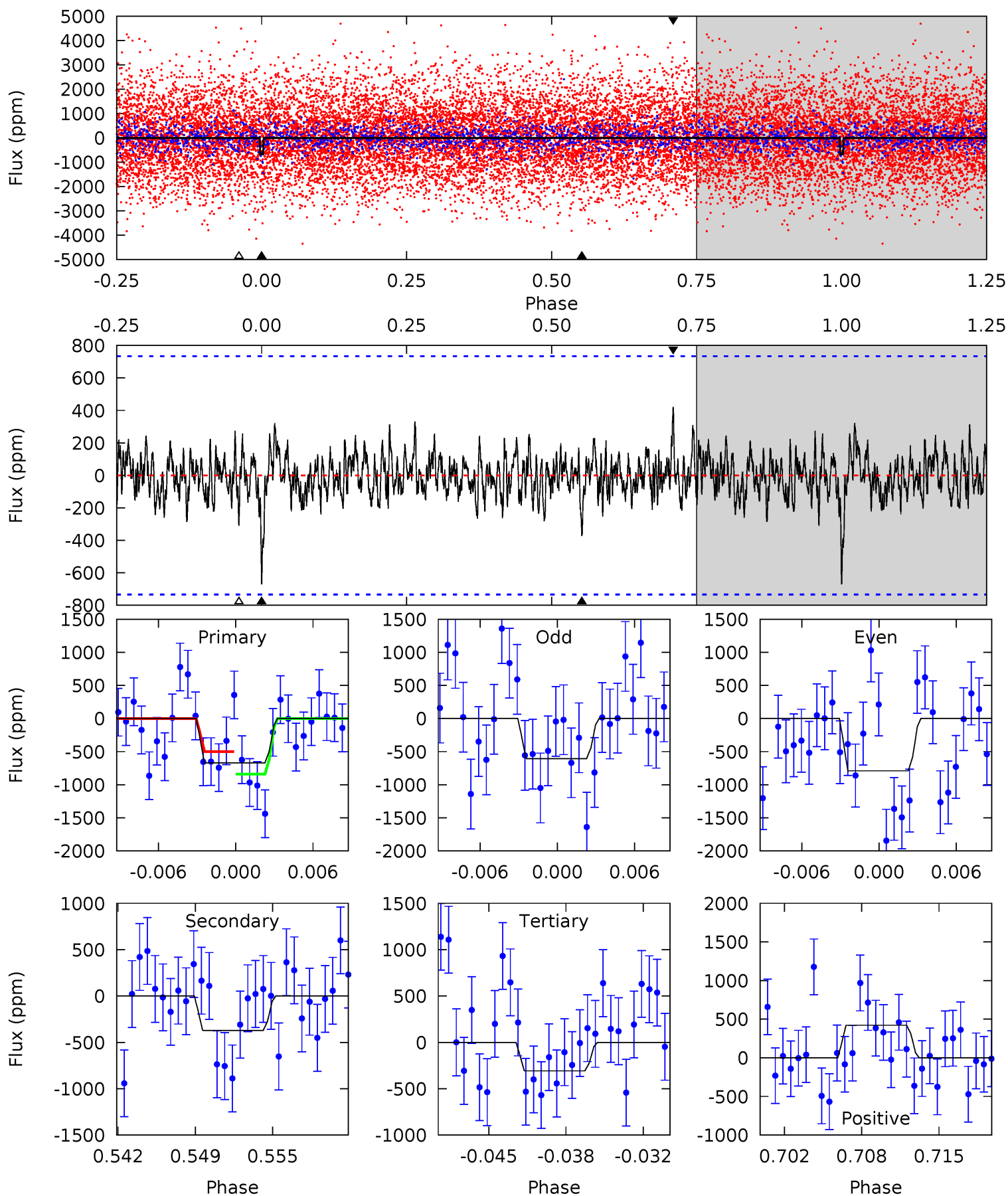
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005651181-05, P = 30.210162 Days, E = 127.103139 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.67	2.59	2.14	2.94	5.11	2.73	0.75	2.53	1.73	0.45	-0.35	0.62	1.10	0.39	1.19



Stellar Parameters For KIC 005651181

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8529^{+236}_{-371}	$3.769^{+0.385}_{-0.137}$	$-0.180^{+0.400}_{-0.350}$	$3.065^{+1.017}_{-1.356}$	$2.017^{+0.437}_{-0.437}$	$0.099^{+0.333}_{-0.046}$
	+3%/-4%	+10%/-4%	+222%/-194%	+33%/-44%	+22%/-22%	+337%/-47%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005651181-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$21.56^{+24.89}_{-14.99}$	1815^{+162}_{-201}	-6276^{+67398}_{-47030}	$-114.786^{+12528.868}_{-11176.706}$
Alt.	-372 ± 144	$23.50^{+25.36}_{-16.44}$	1826^{+155}_{-222}	4218^{+3081}_{-963}	19^{+187}_{-15}

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

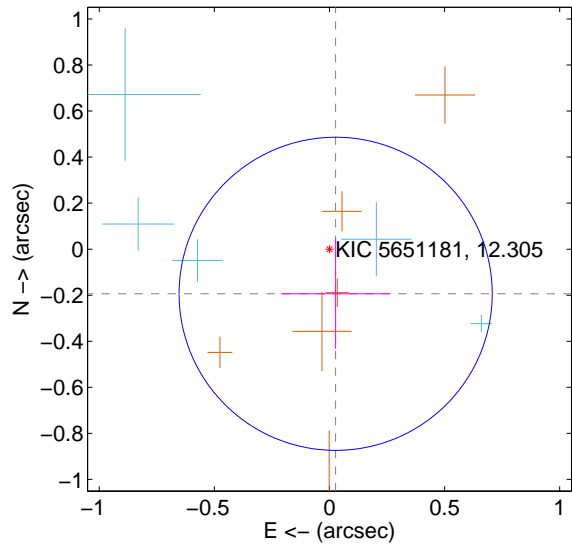
Supplemental centroid analysis for 005651181-05. Kepler magnitude: 12.30. Transit SNR -1.00

There are 7 quarters with good PRF difference image offsets

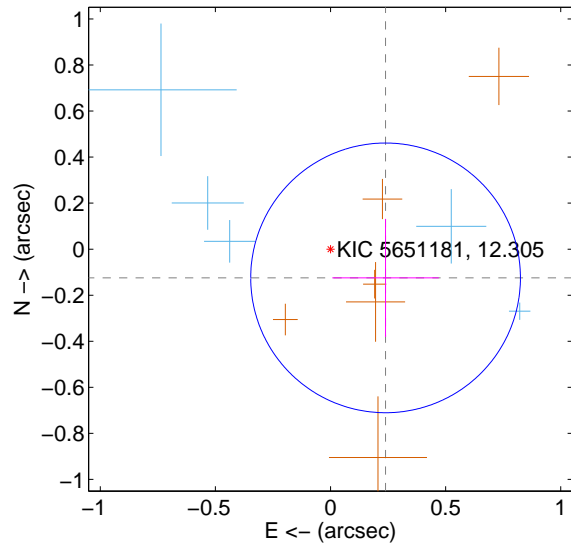
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.196 ± 0.227	0.86	-0.027 ± 0.237	-0.194 ± 0.239
PRF-fit source offset from KIC position	0.270 ± 0.195	1.38	-0.239 ± 0.231	-0.125 ± 0.256
photometric centroid source offset	0.29 ± 0.16	1.79	-0.23 ± 0.17	0.18 ± 0.16

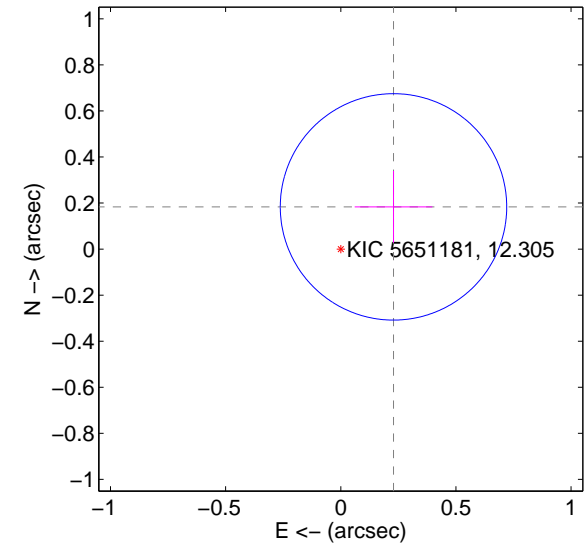
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

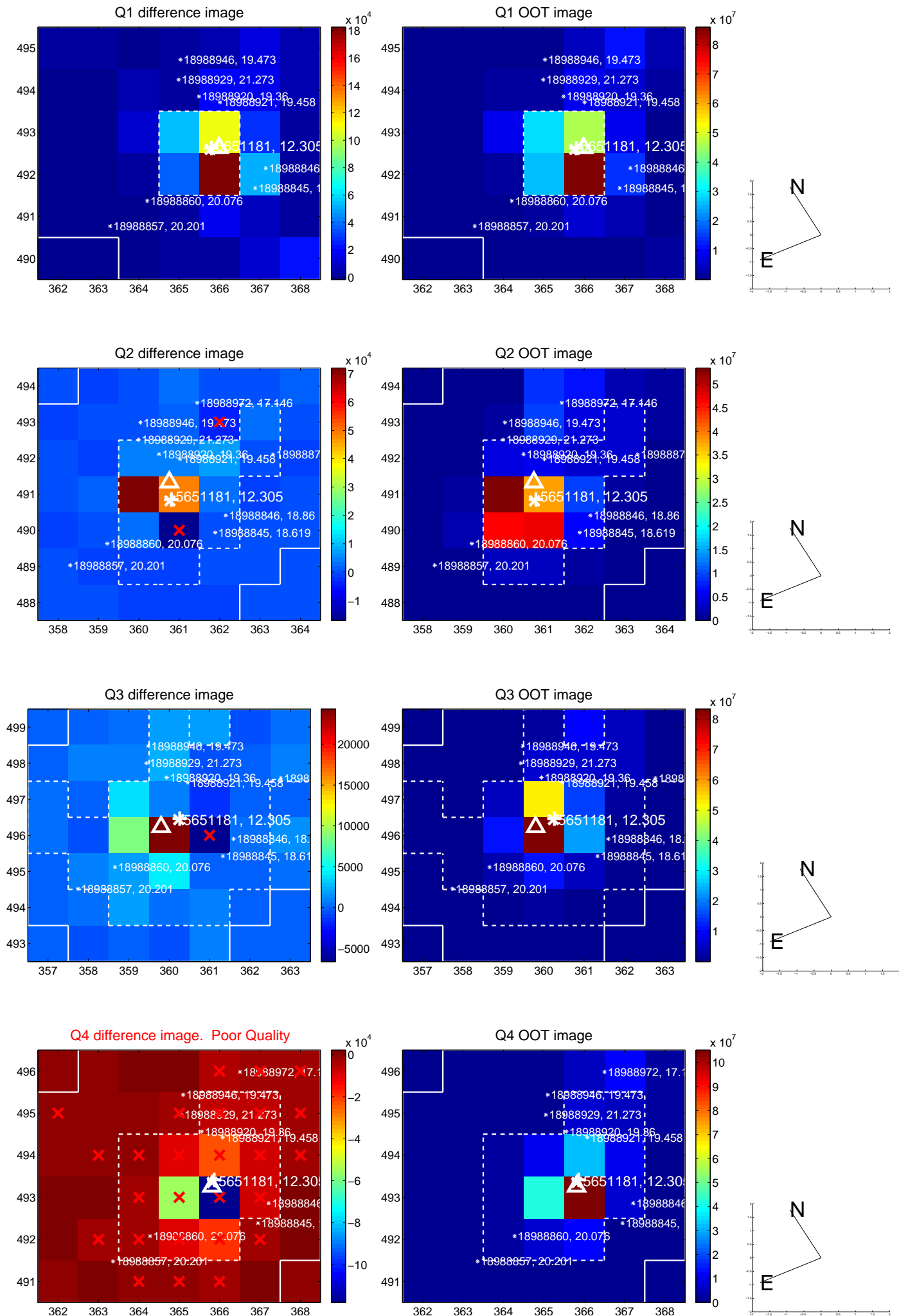


offset from photometric centroids

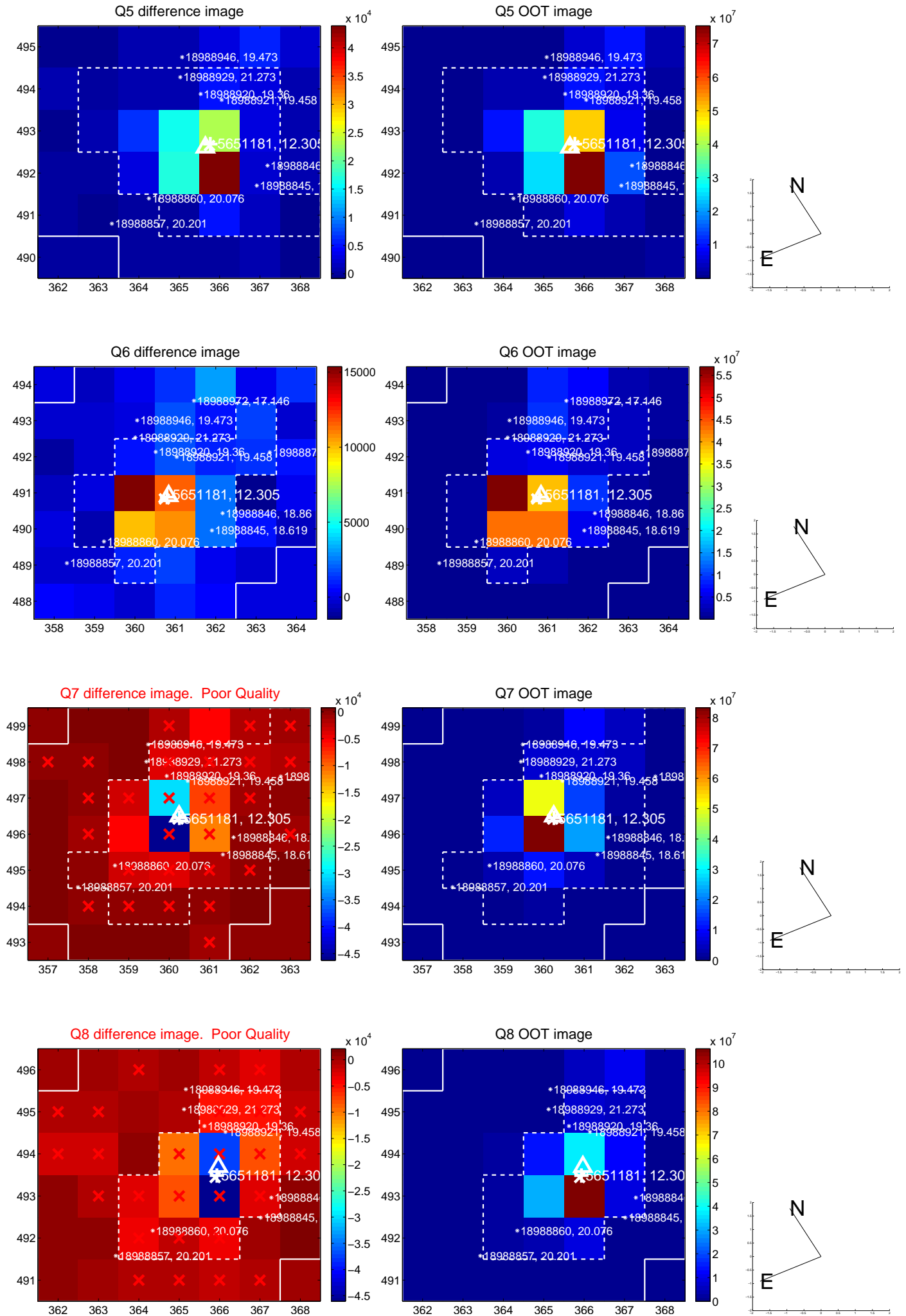


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

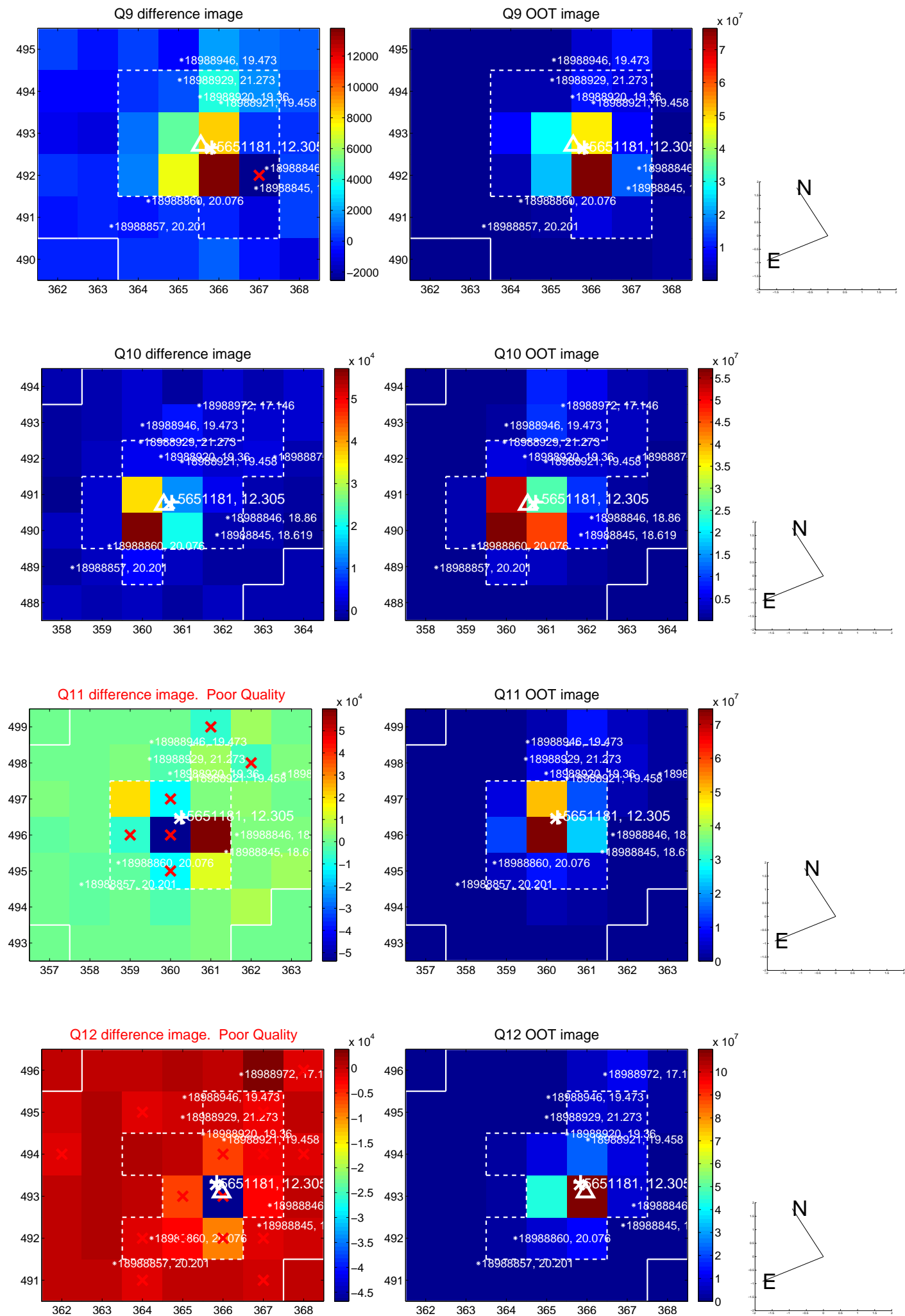
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



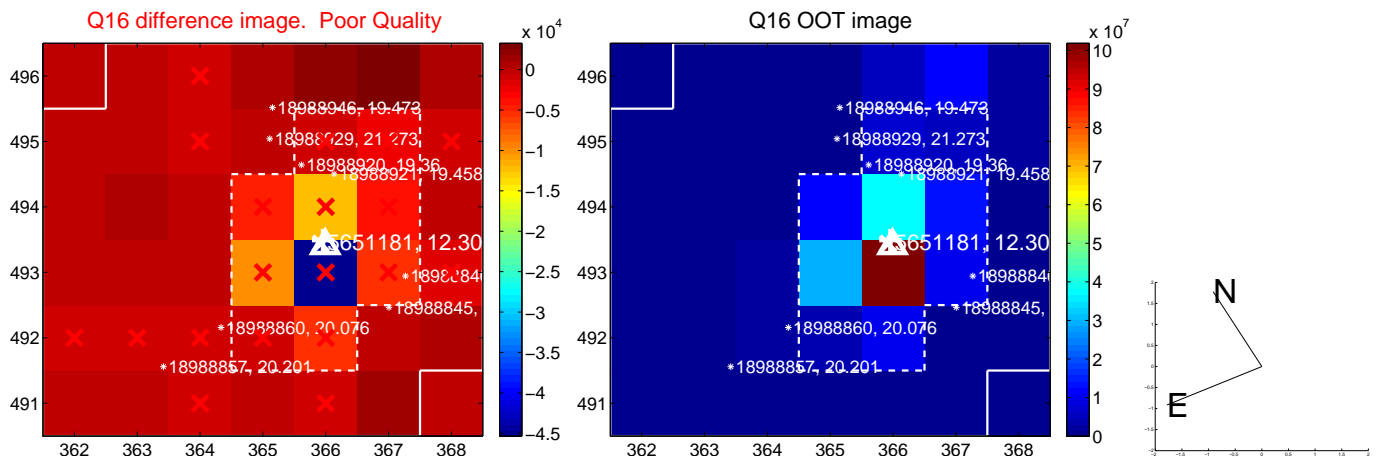
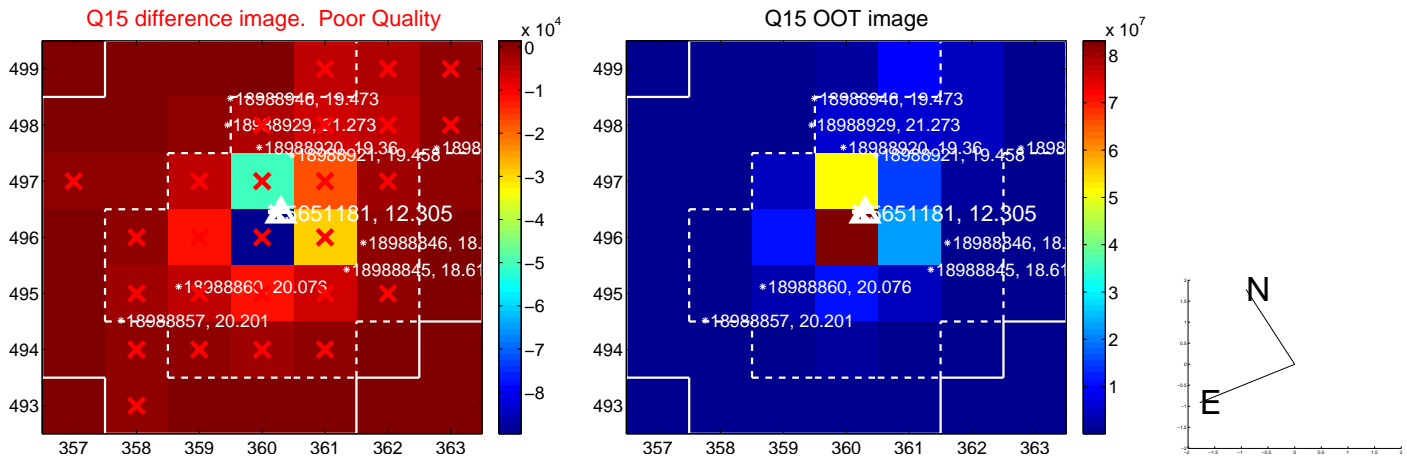
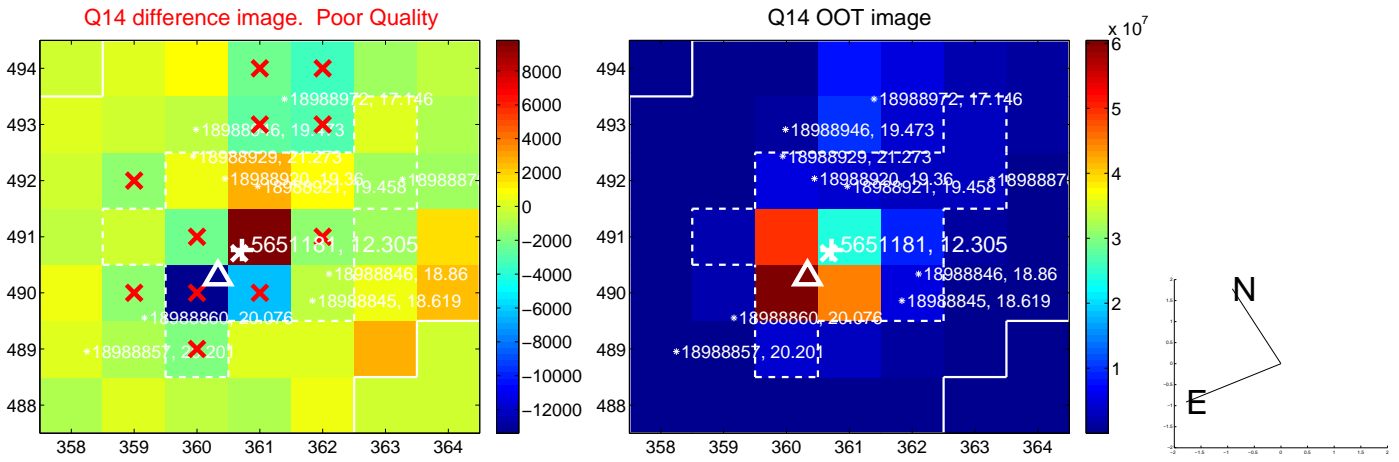
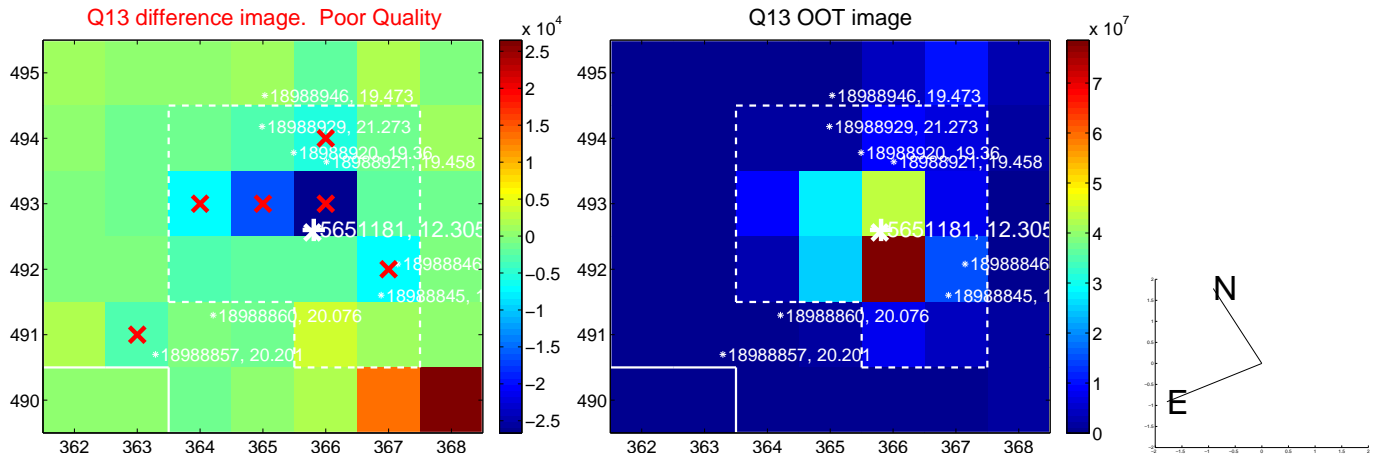
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



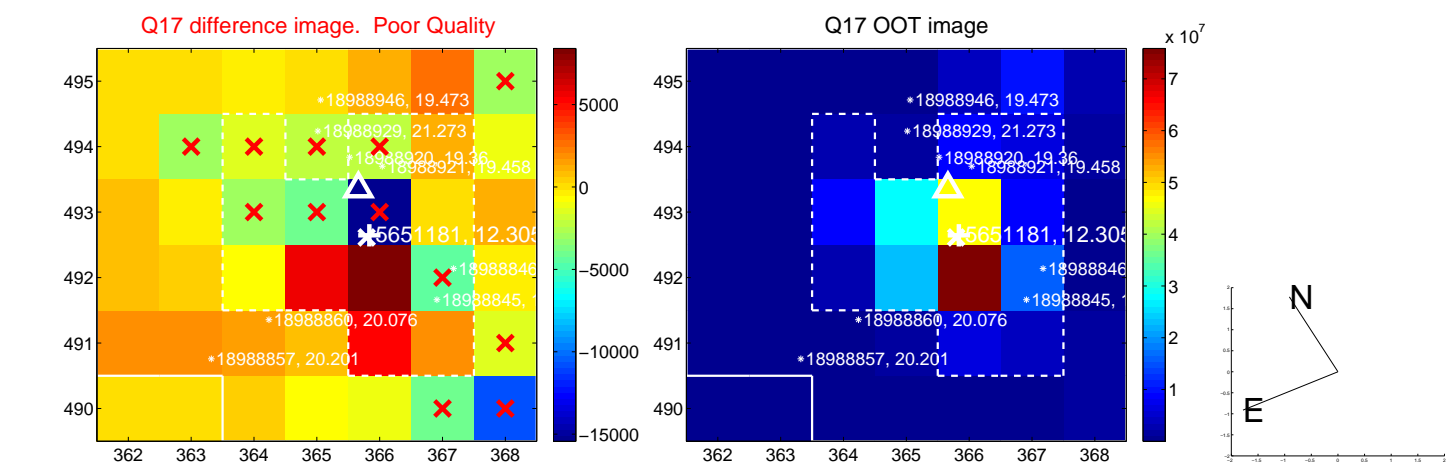
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



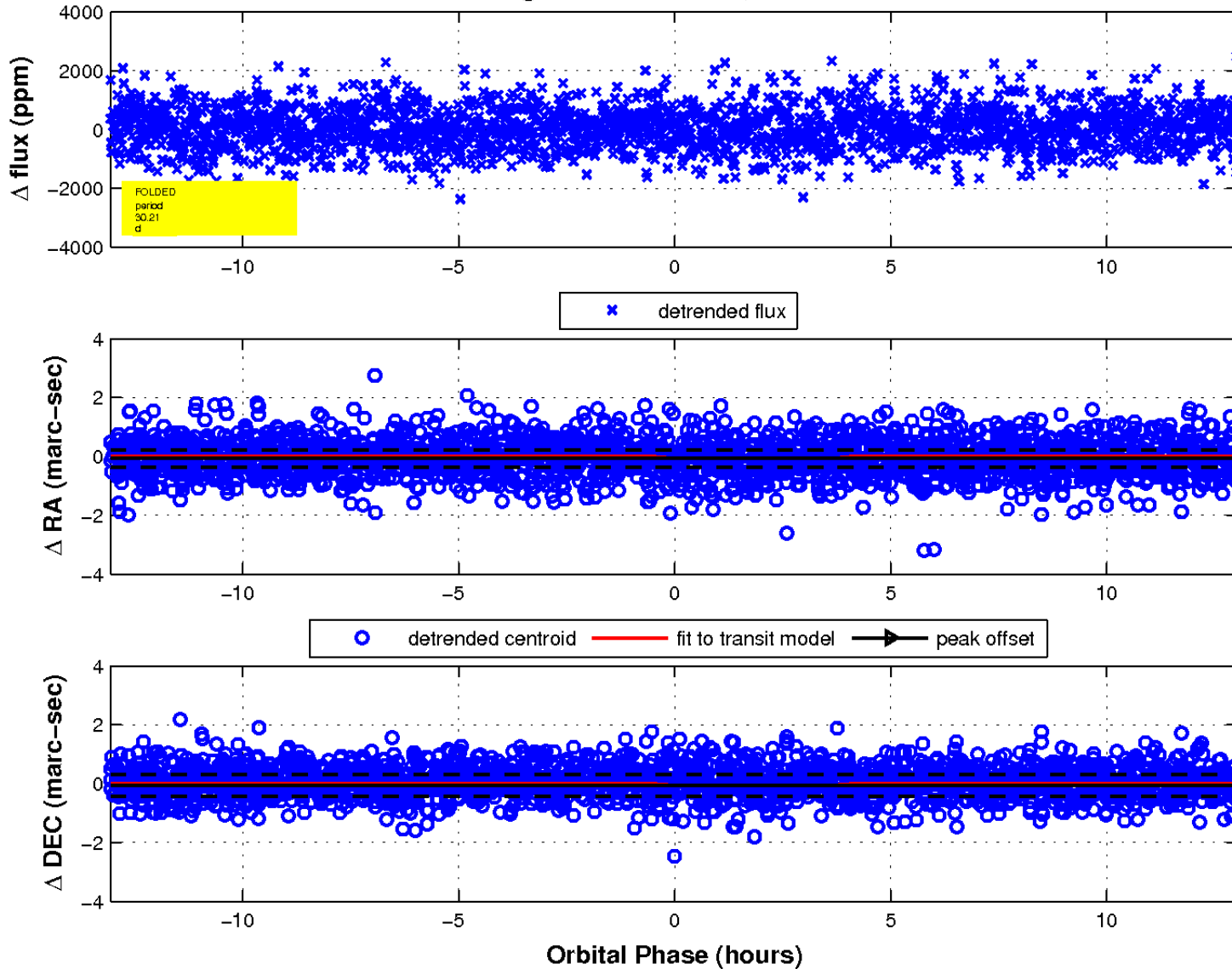
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5



UKIRT Image

Declination

