

KIC 009351205

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})
009351205-01	OBS	No	6.287261	137.156874	330.4	7.494	8.9	8.7	1.70	7373	3.58	1269.60
009351205-02	OBS	No	0.571545	131.983640	150.3	5.527	7.7	10.5	1.70	7373	2.12	31060.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009351205-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009351205-02	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

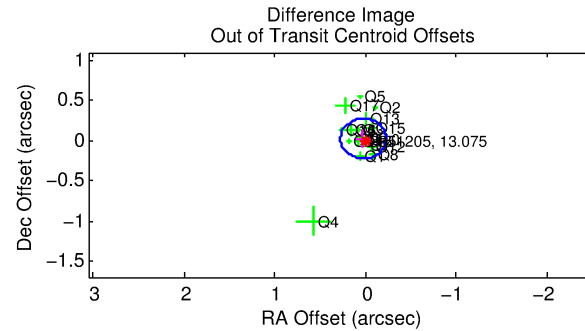
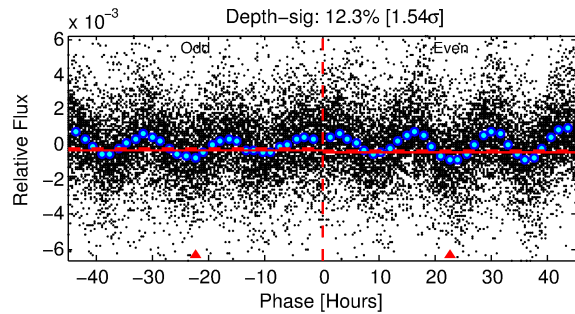
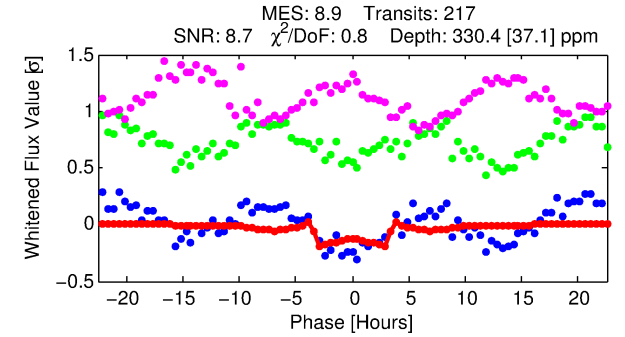
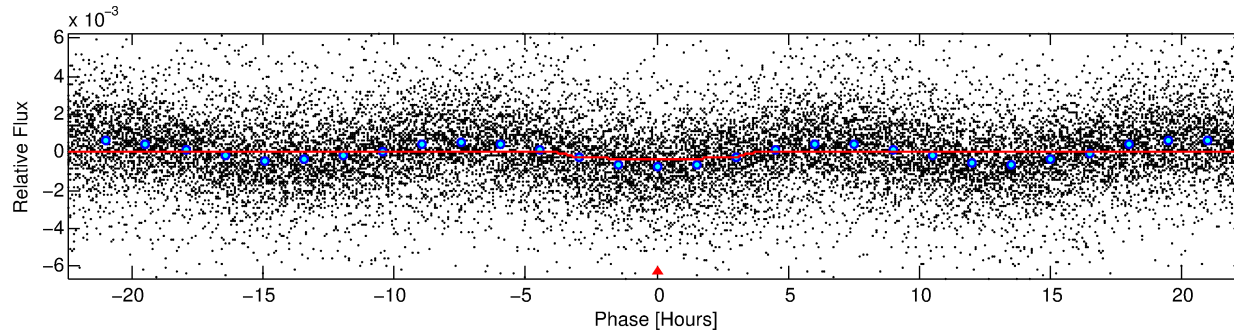
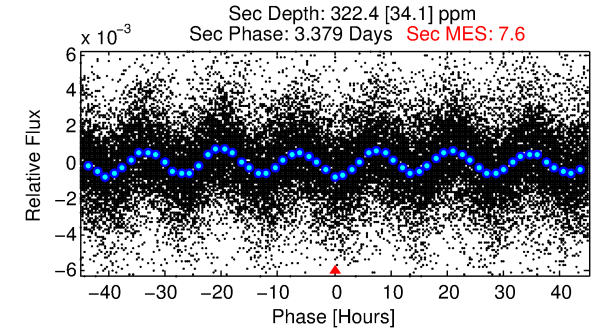
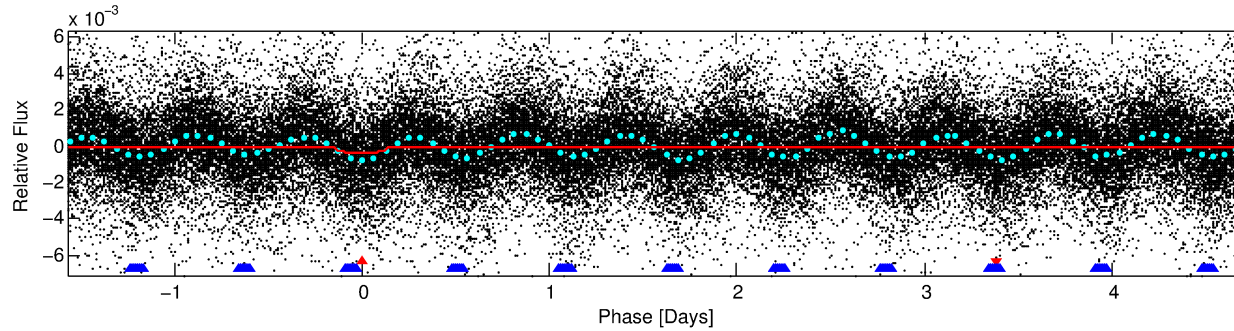
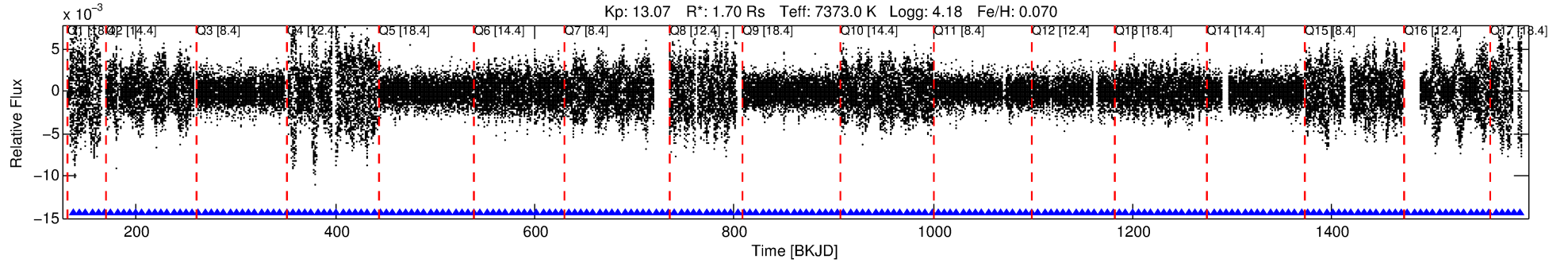
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009351205-01

No Significant Match Found

DV One-Page Summary

KIC: 9351205 Candidate: 1 of 2 Period: 6.287 d



DV Fit Results:

Period = 6.28726 [0.00007] d
Epoch = 137.1569 [0.0073] BKJD
Rp/R* = 0.0193 [0.0016]
a/R* = 3.23 [1.11]
b = 0.90 [0.08]
Seff = 1269.60 [545.30]
Teq = 1522 [163] K
Rp = 3.58 [1.26] Re
a = 0.0778 [0.0214] AU
Ag = 83.72 [36.41] [2.27σ]
Teffp = 7119 [491] K [10.82σ]

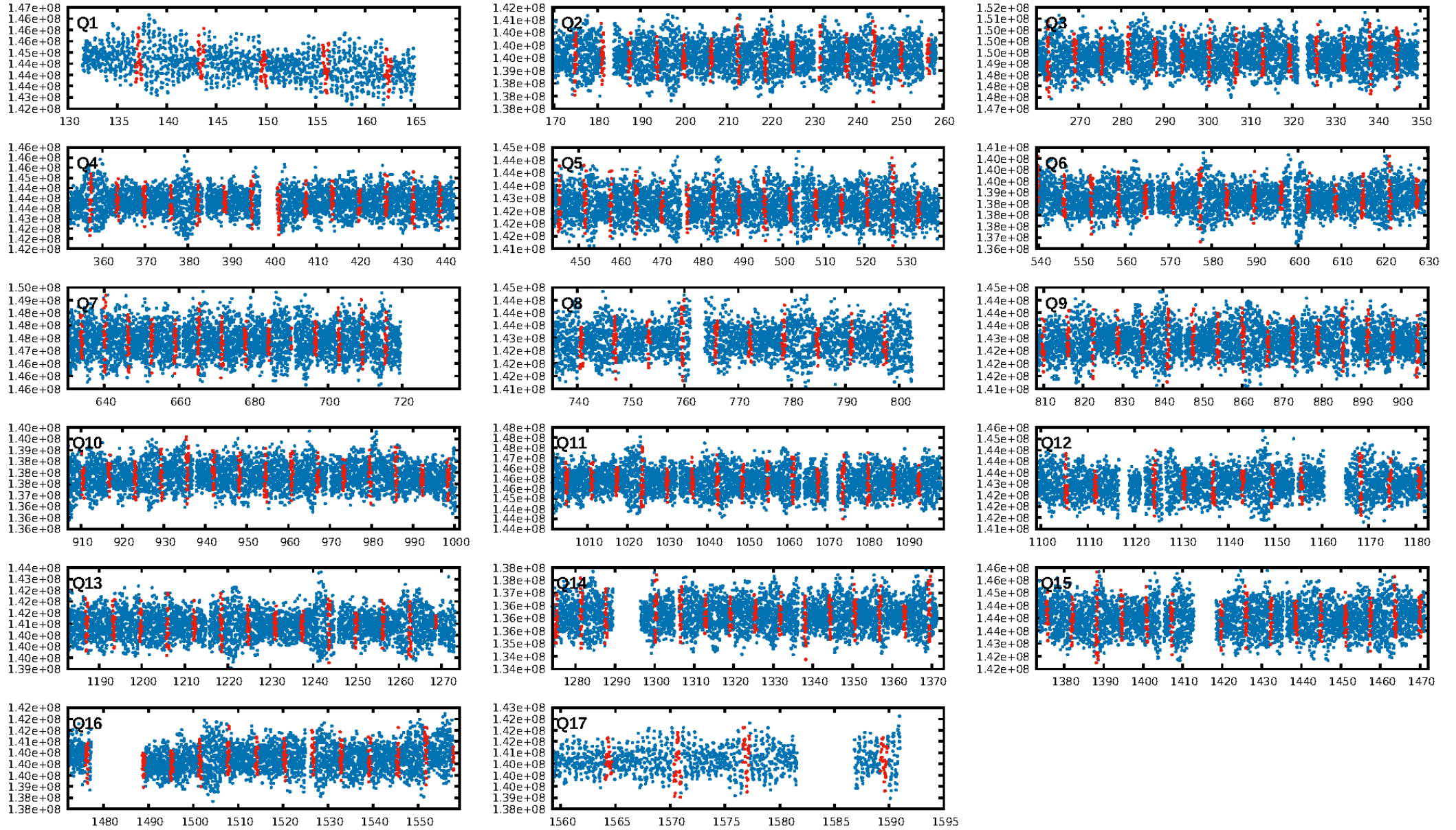
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [14.73σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [208/208]
GhostDiagnostic-chr: -9.055
Centroid-sig: 4.3%
Centroid-so: 0.156 arcsec [1.63σ]
OotOffset-rm: 0.034 arcsec [0.40σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.141 arcsec [1.54σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.88 [15/17]
DiffImageOverlap-fno: 0.00 [0/17]

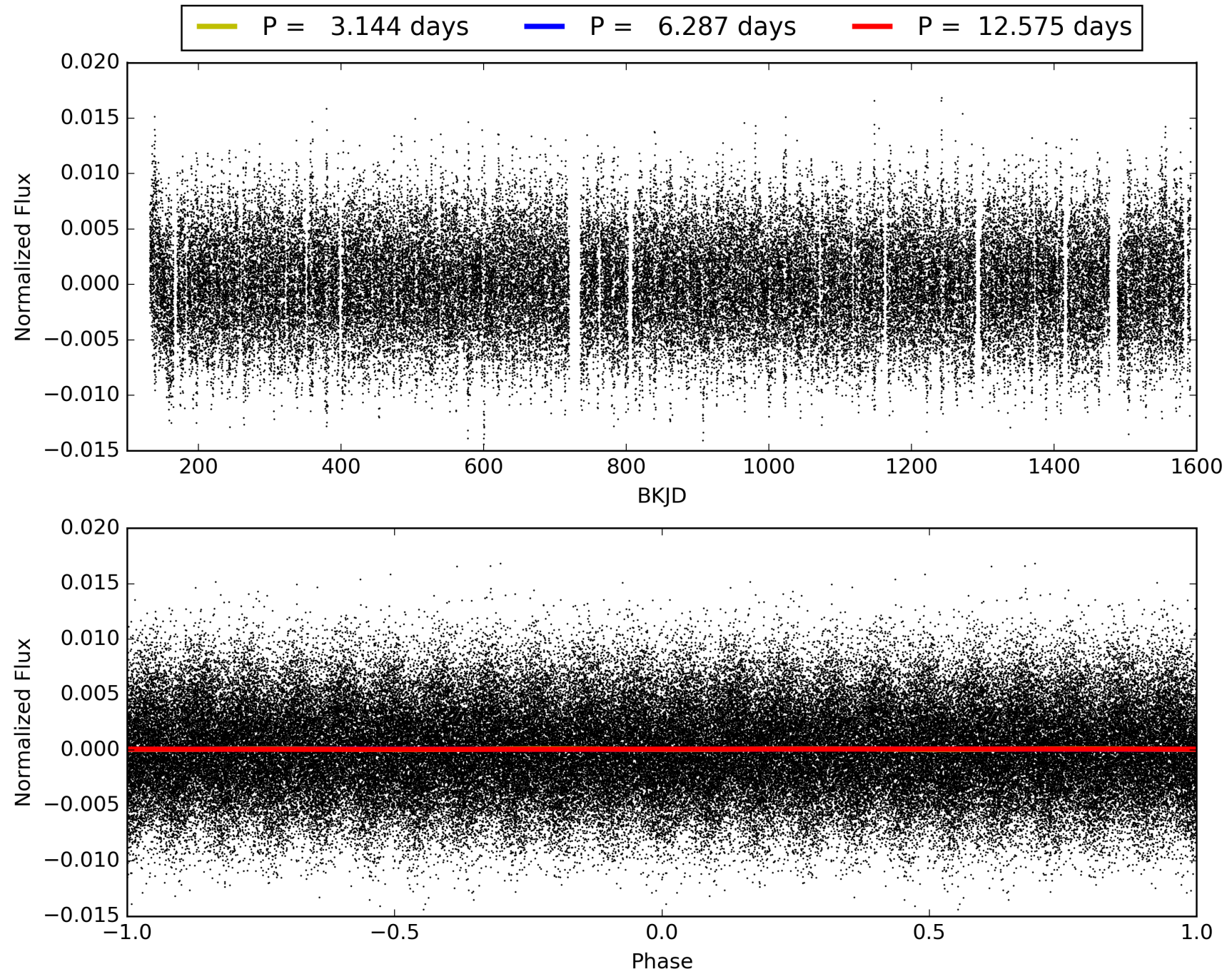
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 22:44:24 Z

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

TCE 009351205-01, PDC Light Curves

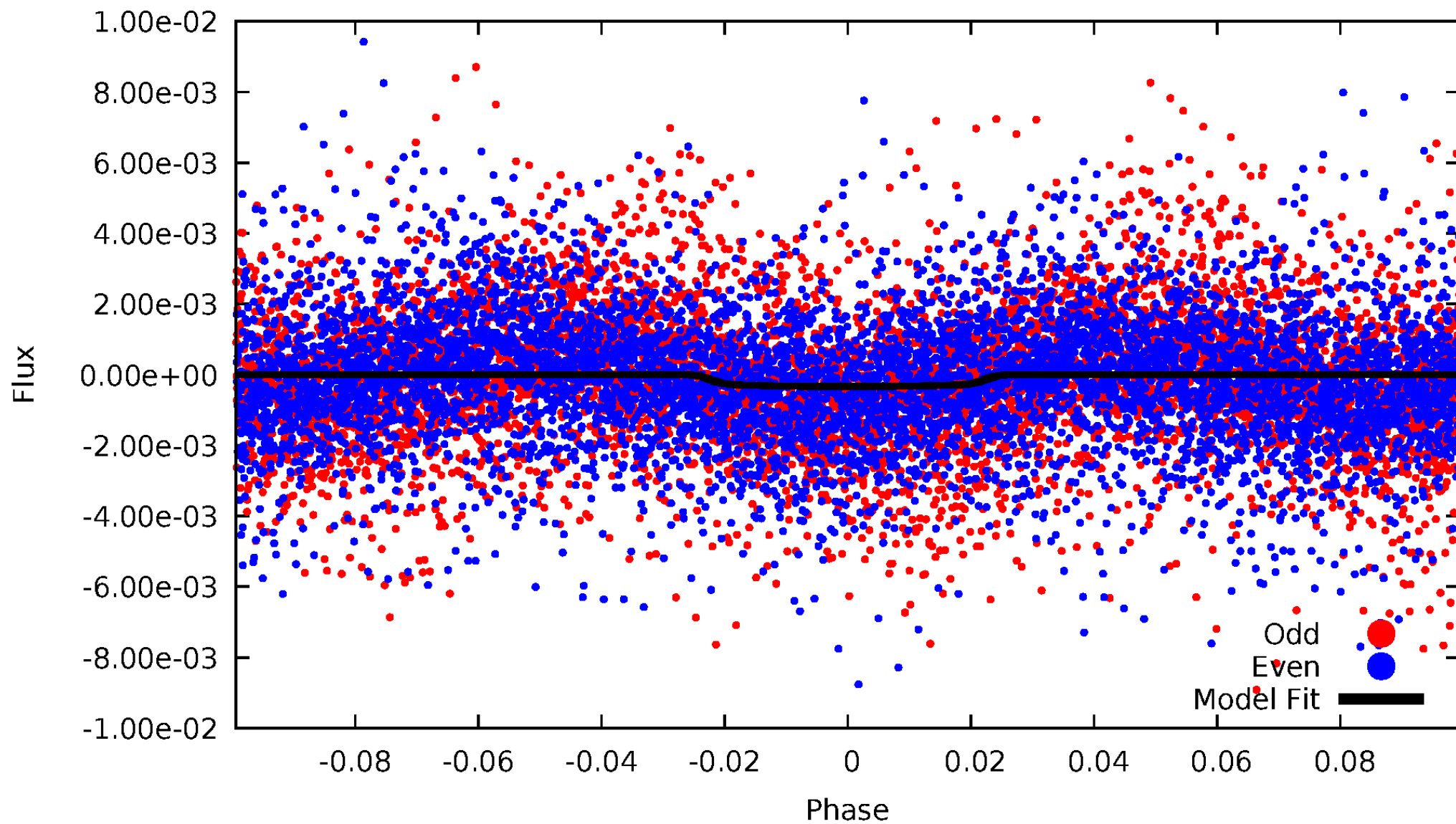


TCE 009351205-01



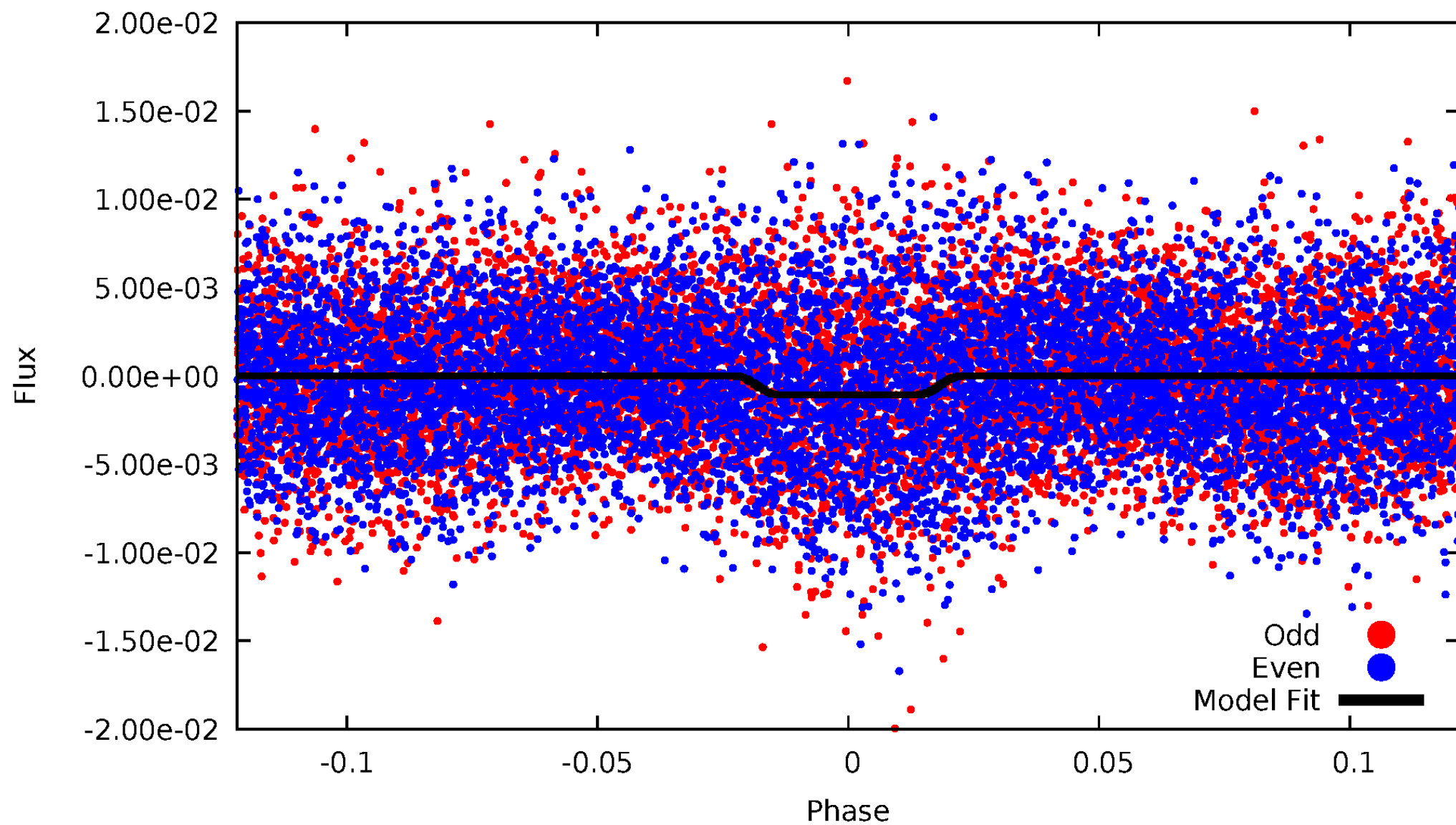
DV Odd/Even

TCE 009351205-01

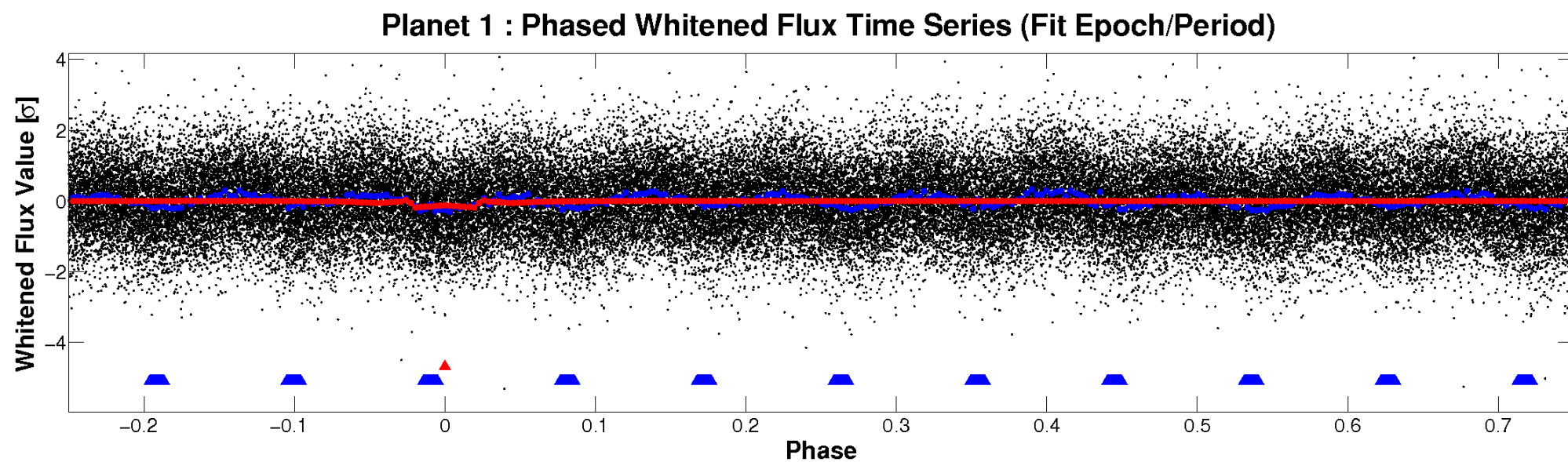
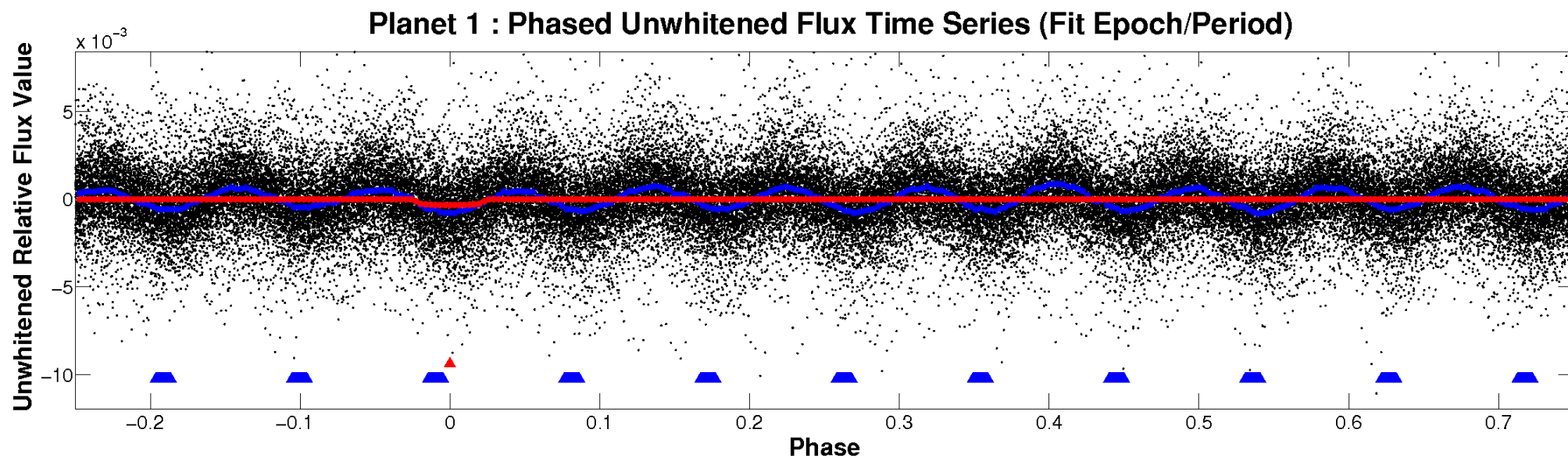


ALT Odd/Even

TCE 009351205-01

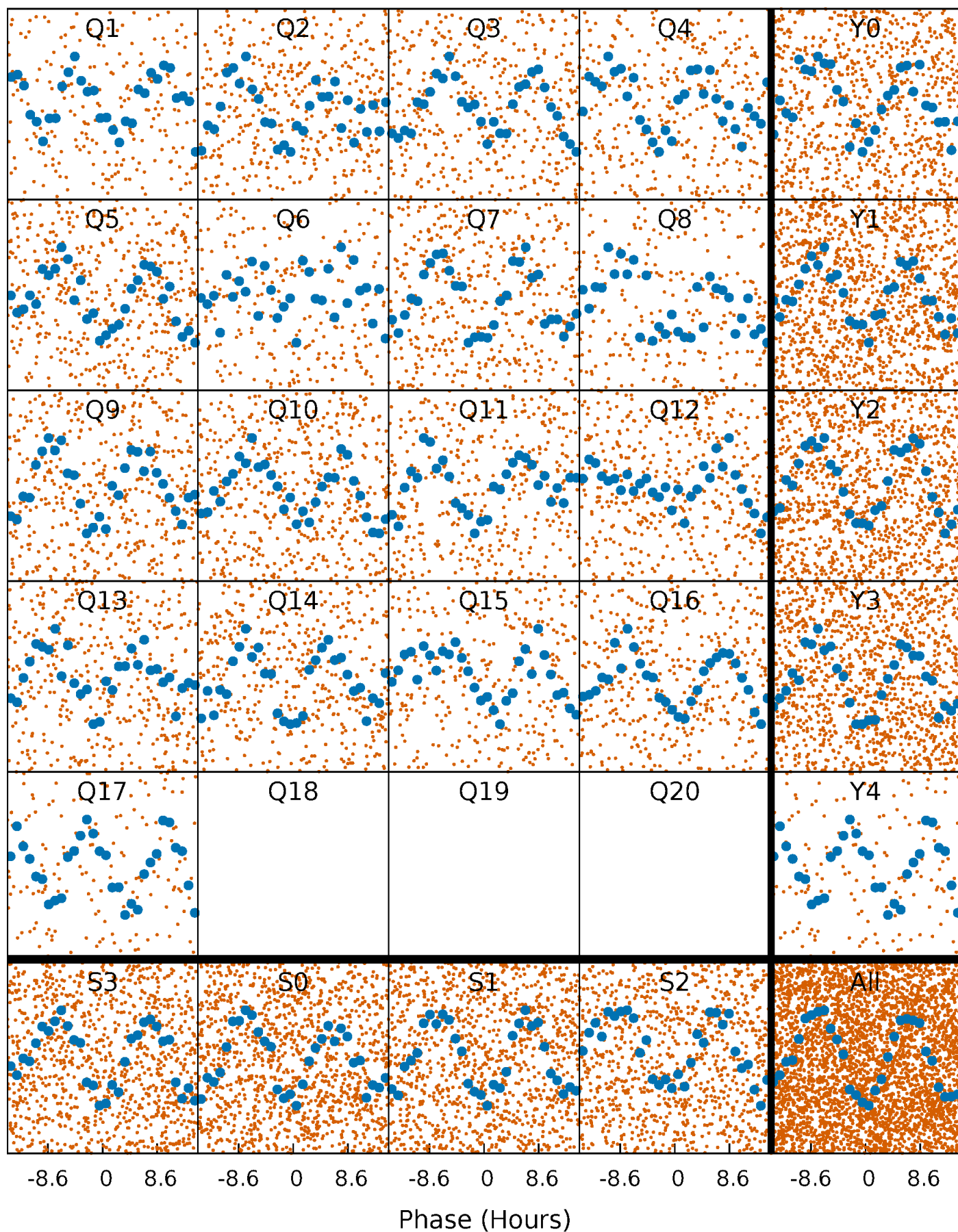


Non-Whitened Vs. Whitened Light Curve



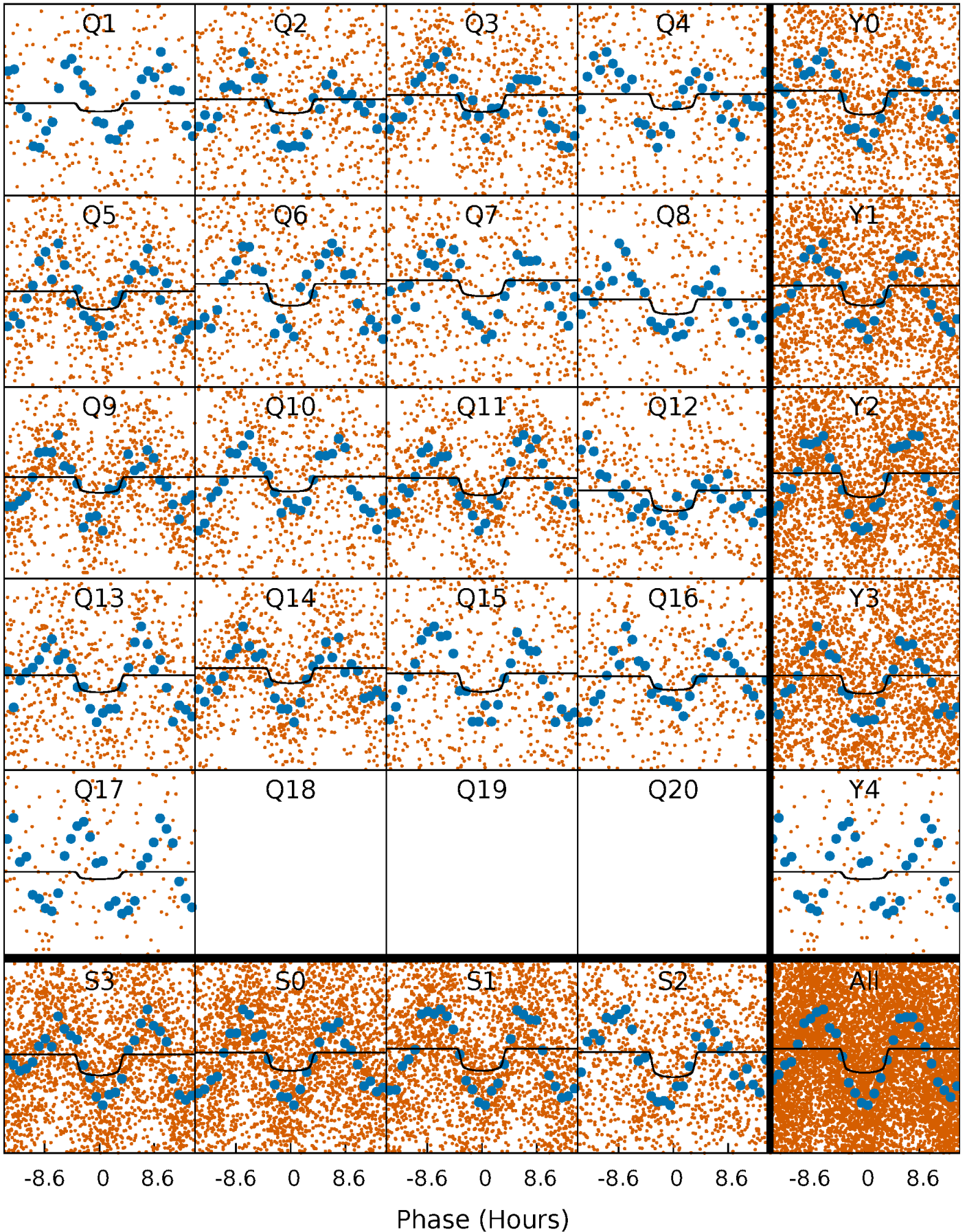
PDC Quarter-Phased Transit Curves

TCE 009351205-01 P= 6.287261 Days $T_0=137.156874$ (BKJD)



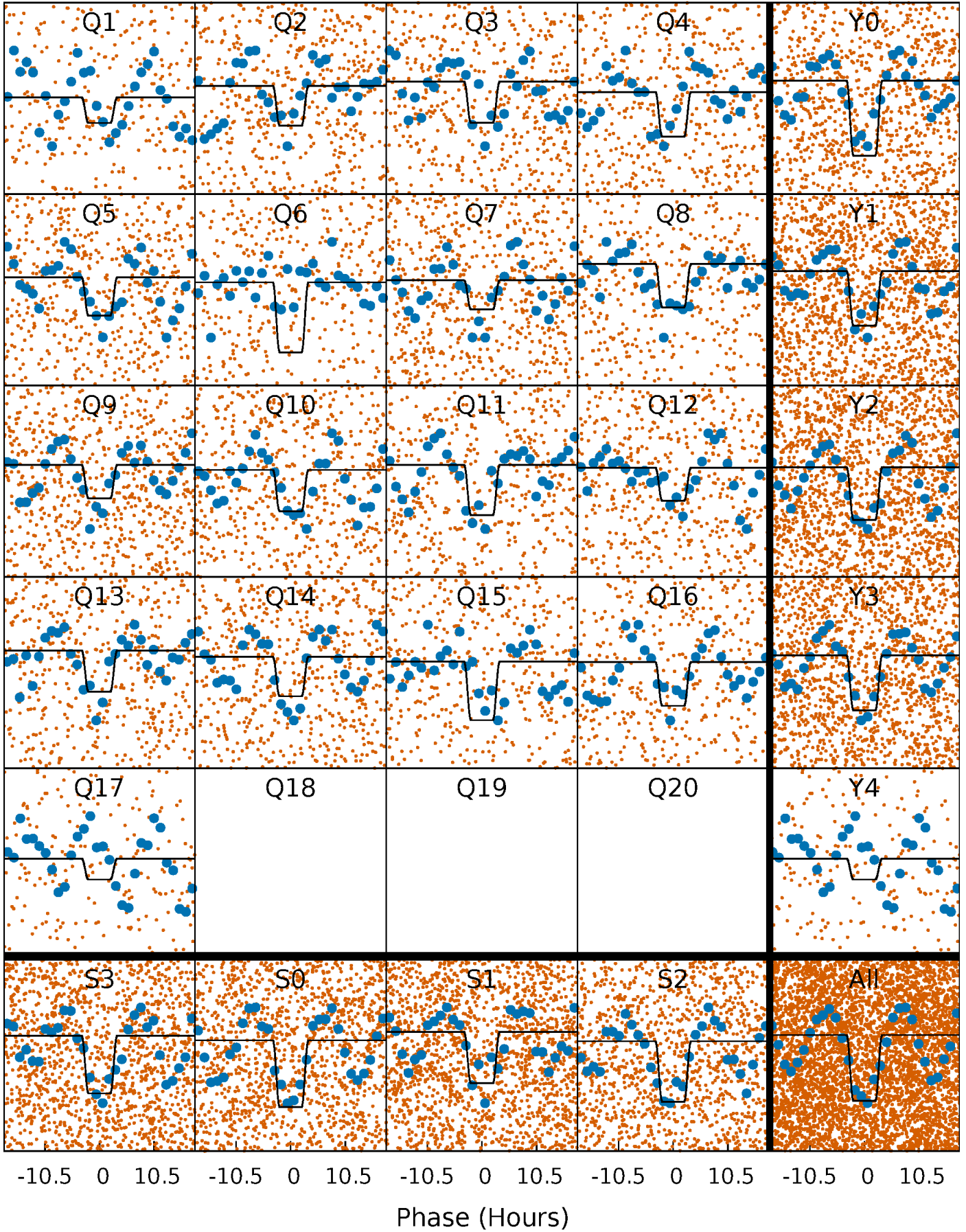
DV Quarter-Phased Transit Curves

TCE 009351205-01 P= 6.287261 Days $T_0=137.156874$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

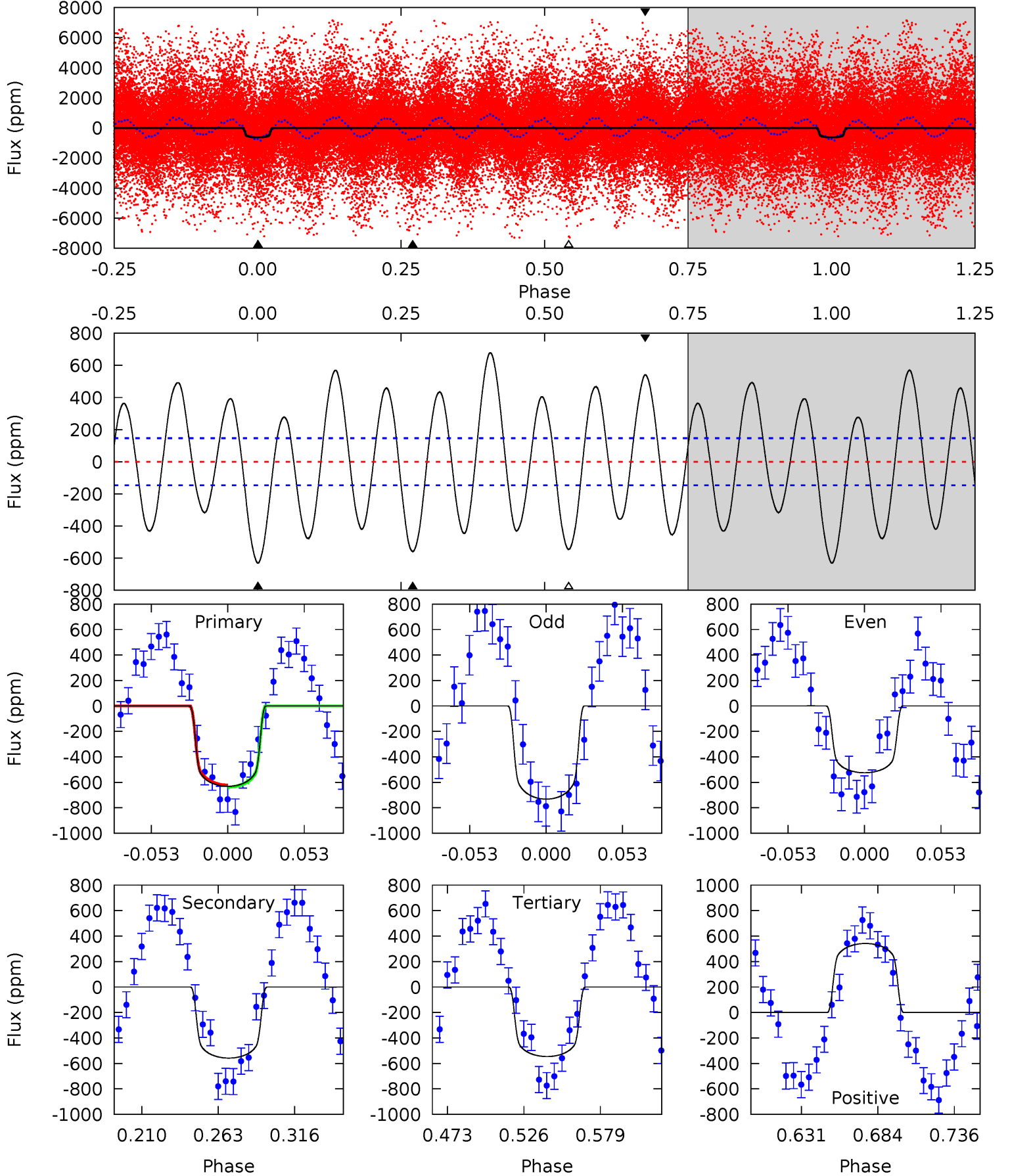
TCE 009351205-01 P= 6.287237 Days $T_0=137.143577$ (BKJD)



DV Model-Shift Uniqueness Test

009351205-01, P = 6.287261 Days, E = 130.869613 Days

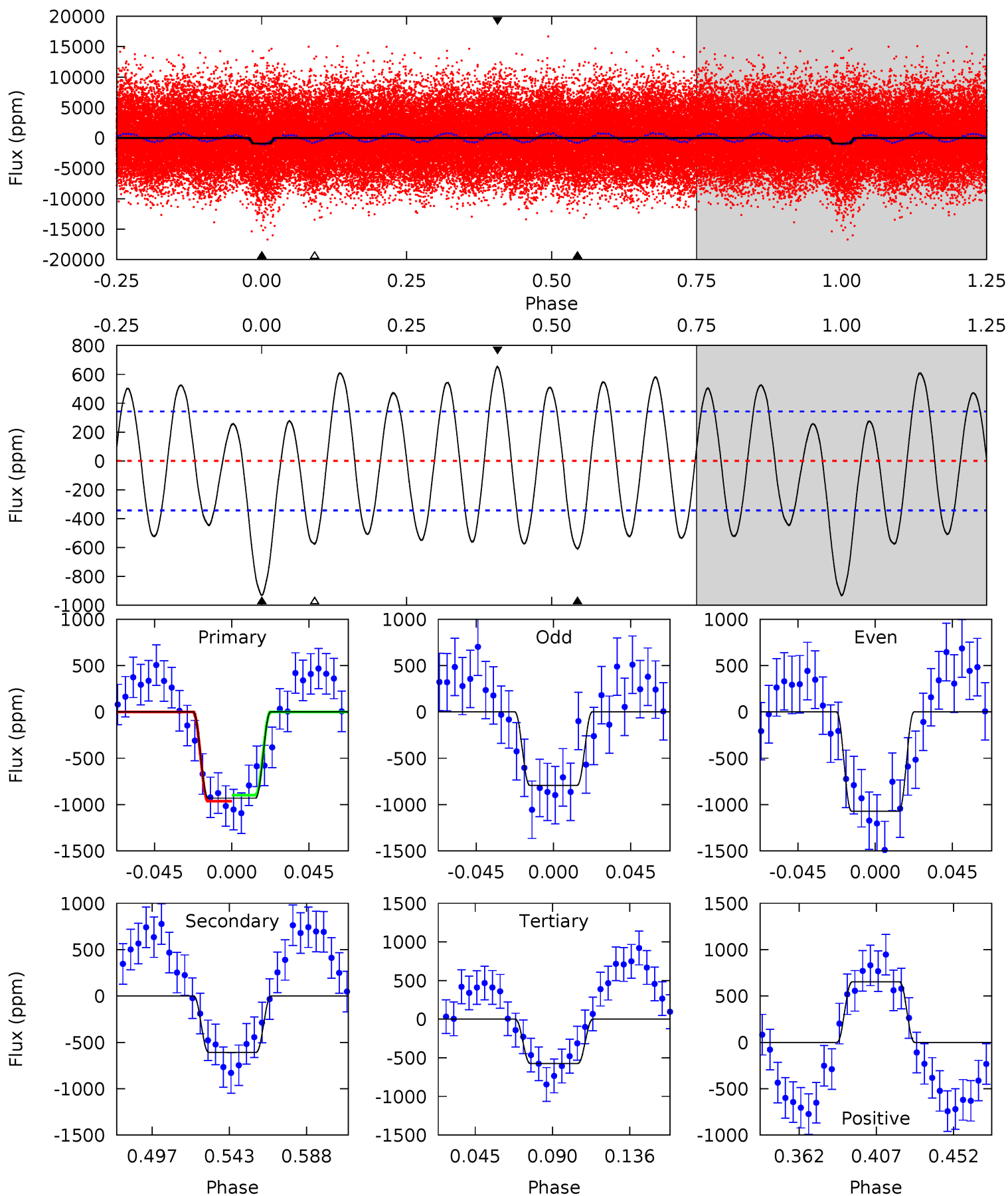
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	17.9	17.5	17.4	4.70	1.94	10.6	2.75	2.88	0.39	0.52	3.35	1.13	0.52	0.25



Alt Model-Shift Uniqueness Test

009351205-01, P = 6.287237 Days, E = 130.856340 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	8.39	7.93	9.00	4.73	2.00	5.19	4.93	3.85	0.46	-0.61	1.93	1.09	0.41	0.44



Stellar Parameters For KIC 009351205

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7373^{+203}_{-348}	$4.176^{+0.087}_{-0.203}$	$0.070^{+0.200}_{-0.350}$	$1.703^{+0.581}_{-0.249}$	$1.590^{+0.203}_{-0.226}$	$0.453^{+0.224}_{-0.241}$
	+3%/-5%	+2%/-5%	+286%/-500%	+34%/-15%	+13%/-14%	+50%/-53%
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 009351205-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-558 ± 31	$3.64^{+0.74}_{-0.43}$	2155^{+171}_{-135}	8306^{+642}_{-549}	137^{+39}_{-37}
Alt.	-607 ± 72	$6.15^{+1.12}_{-0.69}$	2149^{+171}_{-130}	6293^{+329}_{-334}	52^{+14}_{-14}

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

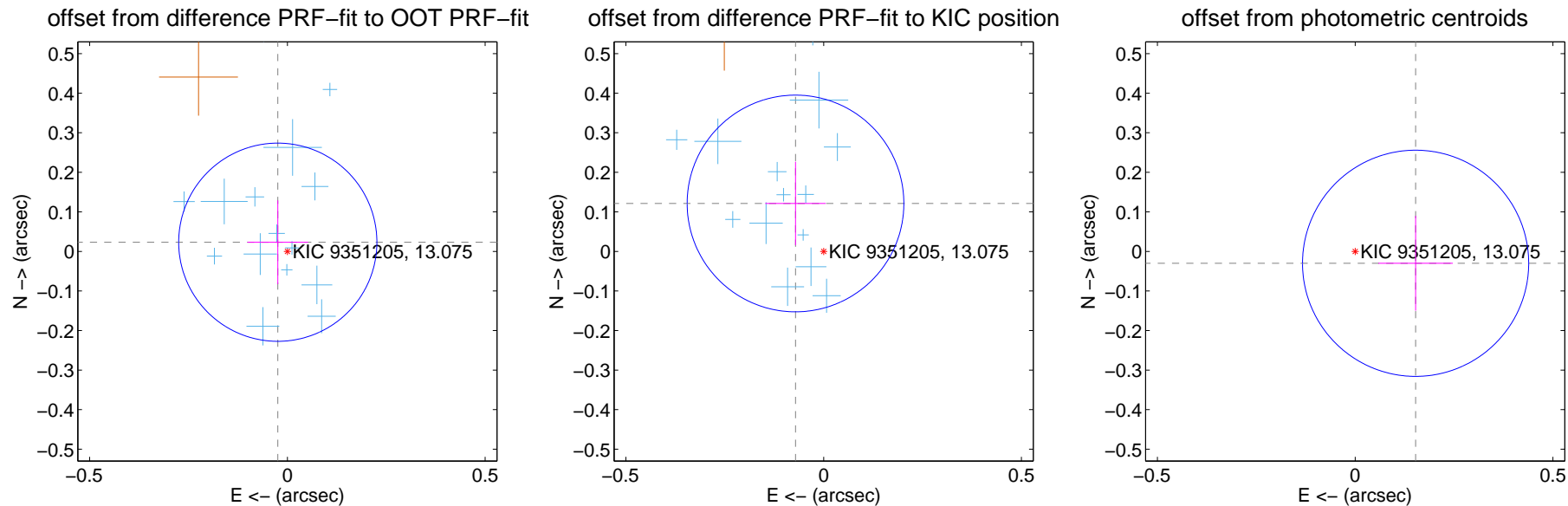
DV Centroid Data

Supplemental centroid analysis for 009351205-01. Kepler magnitude: 13.07. Transit SNR 8.74

There are 15 quarters with good PRF difference image offsets

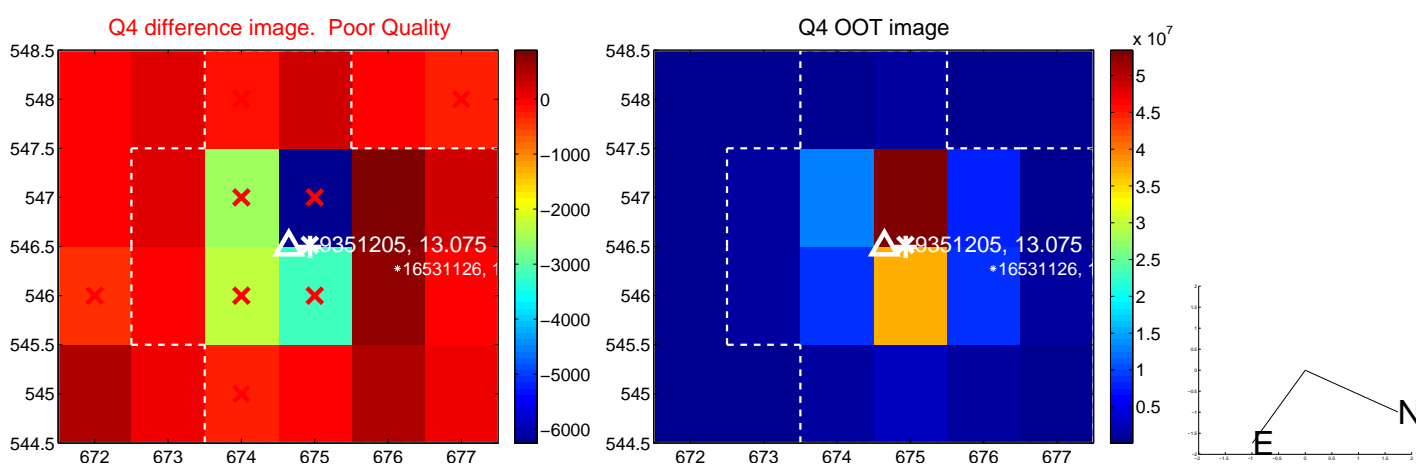
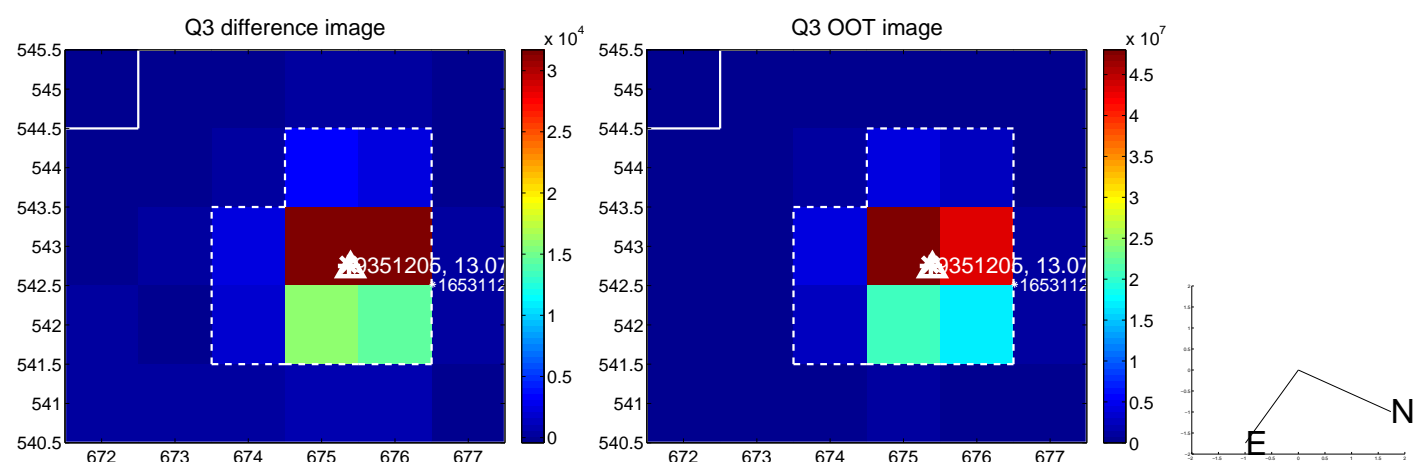
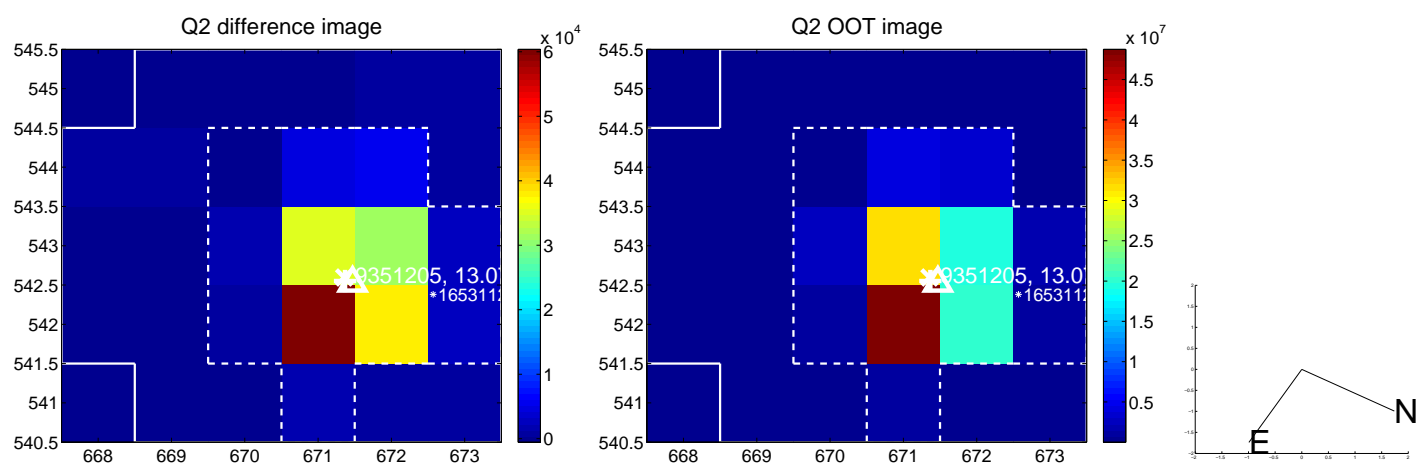
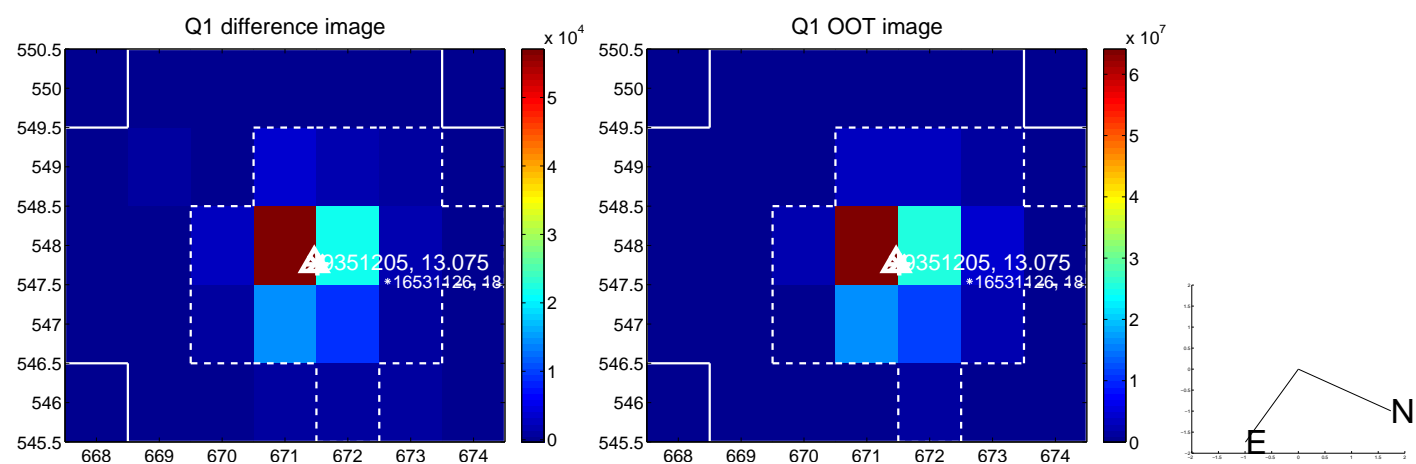
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.034 ± 0.084	0.40	0.024 ± 0.077	0.023 ± 0.106
PRF-fit source offset from KIC position	0.141 ± 0.091	1.54	0.071 ± 0.076	0.121 ± 0.106
photometric centroid source offset	0.16 ± 0.10	1.63	-0.15 ± 0.09	-0.03 ± 0.12

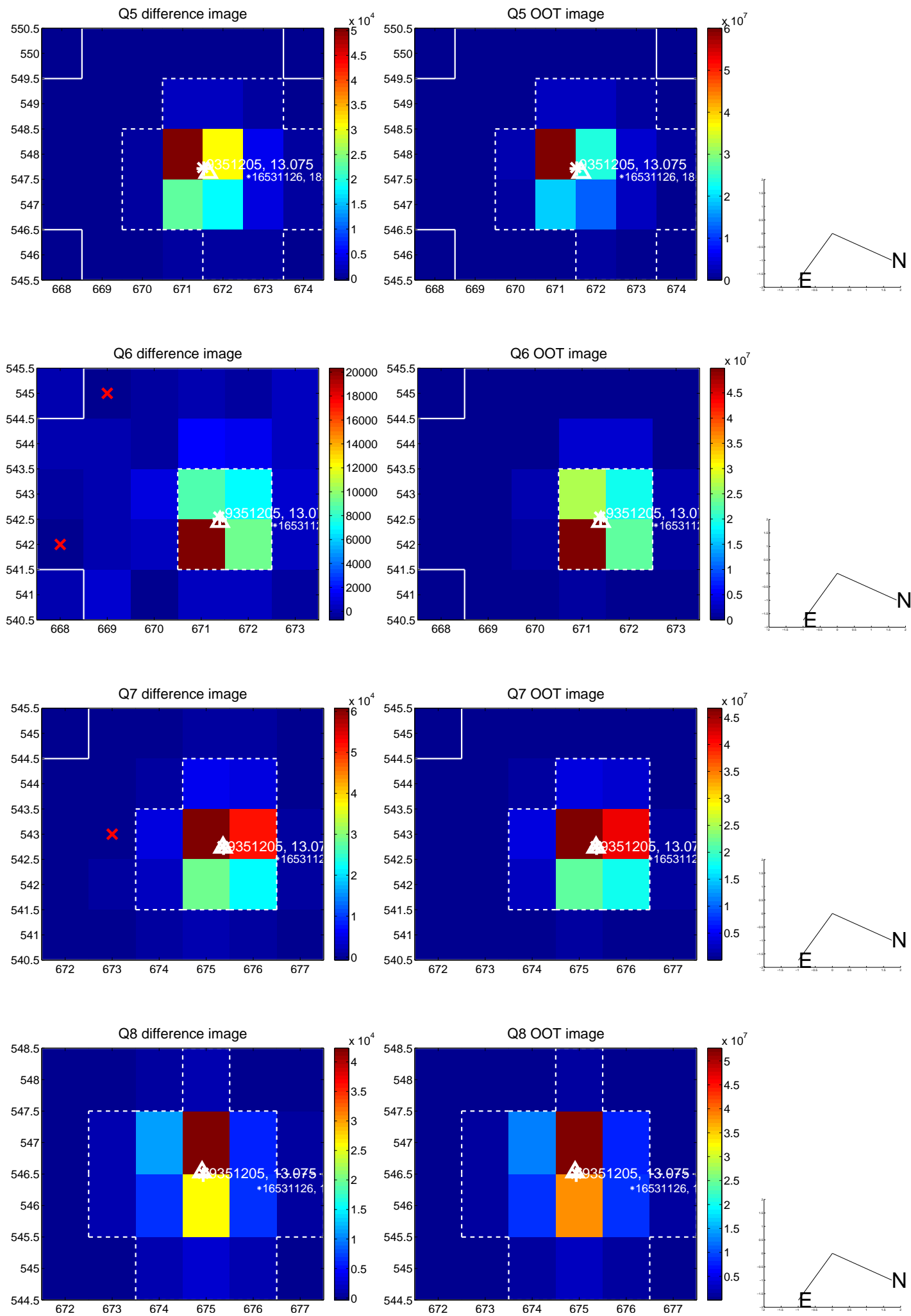


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

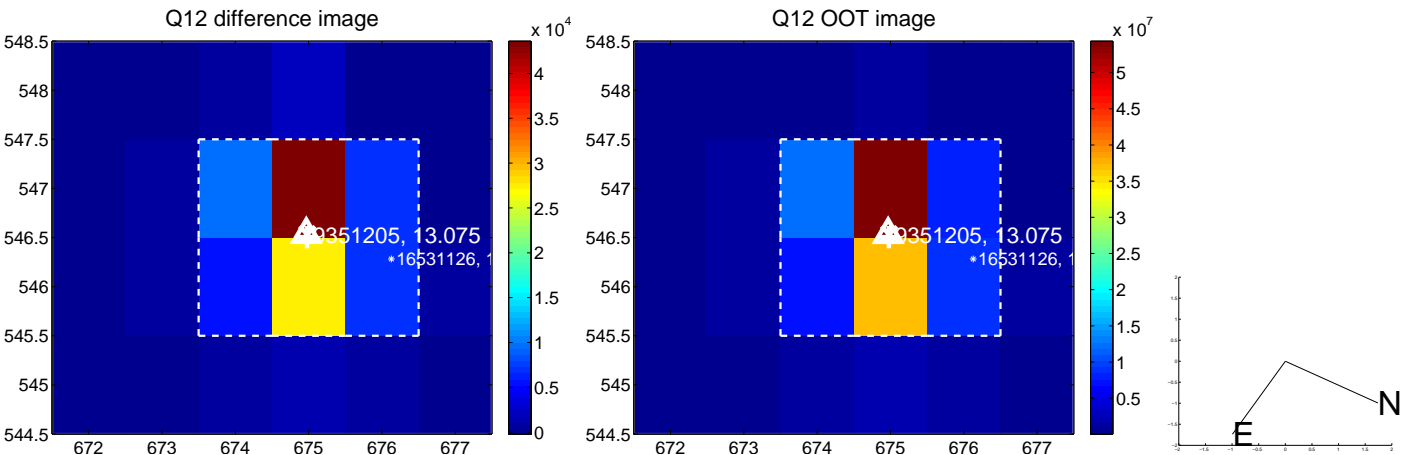
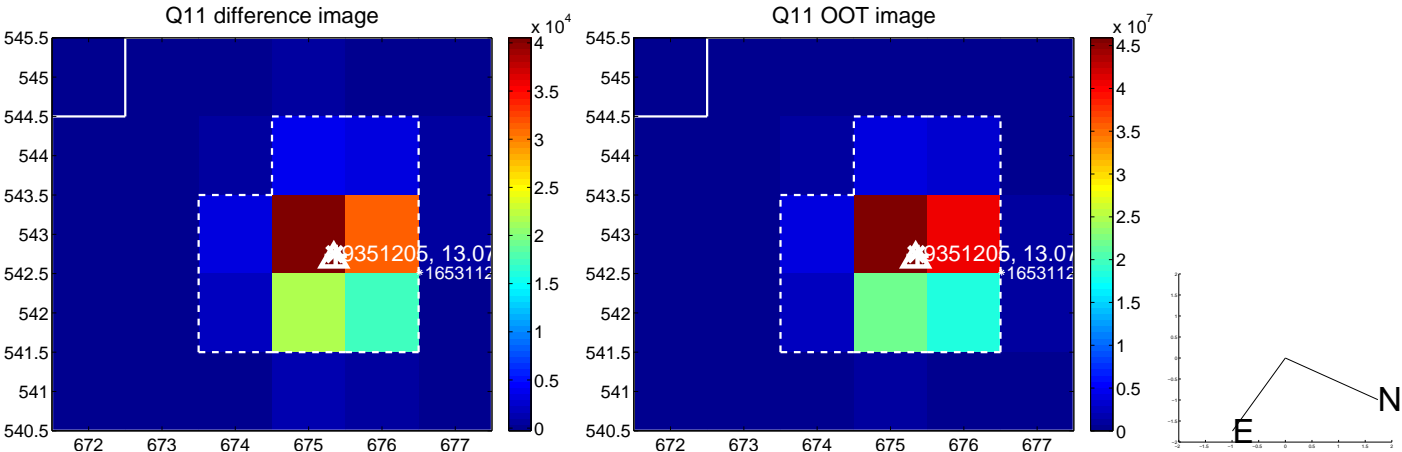
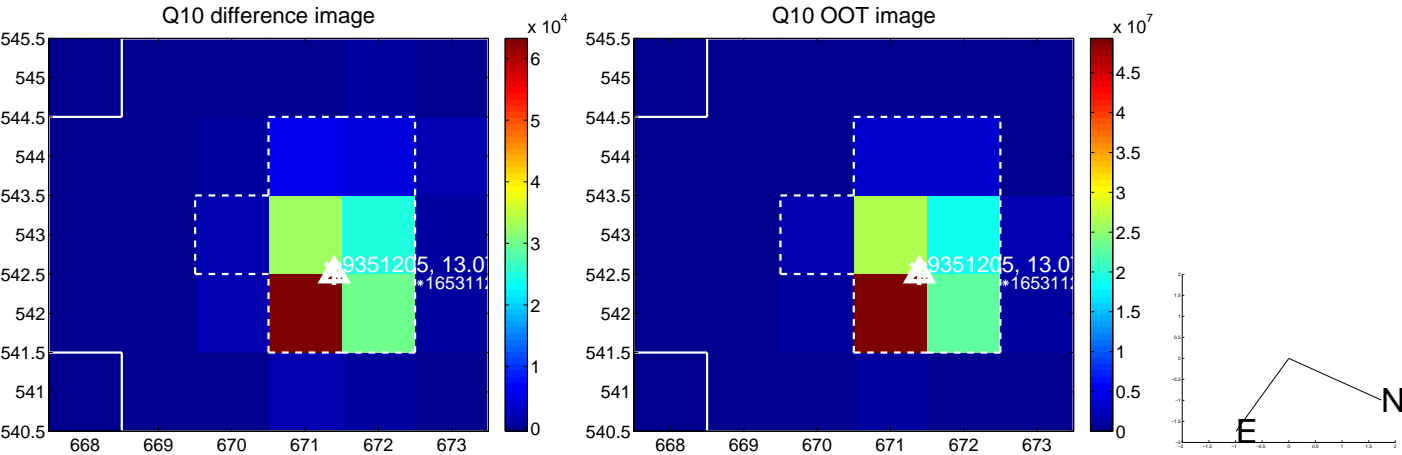
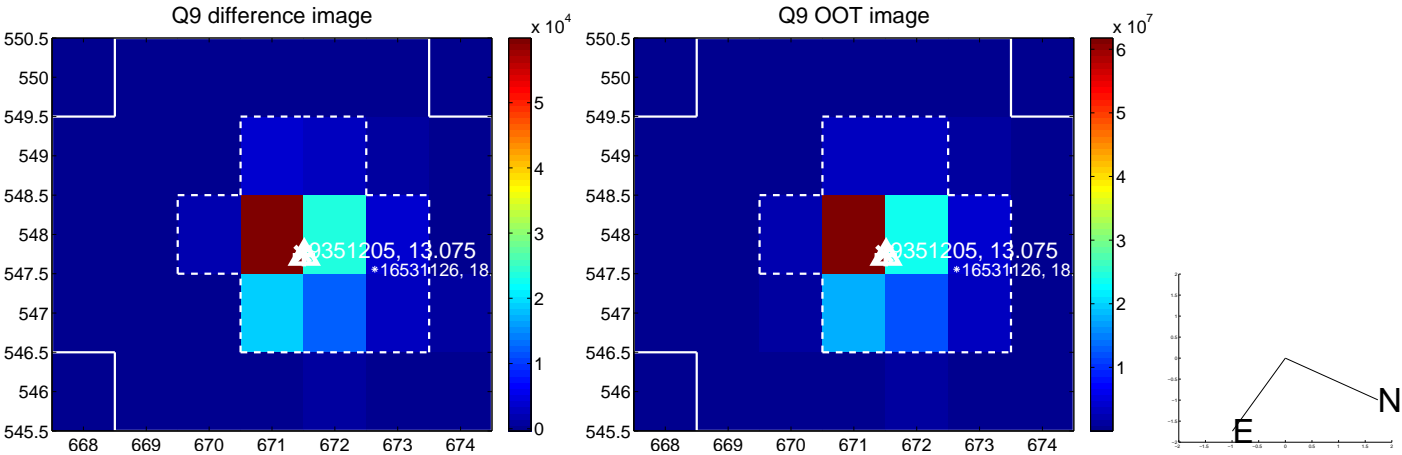
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



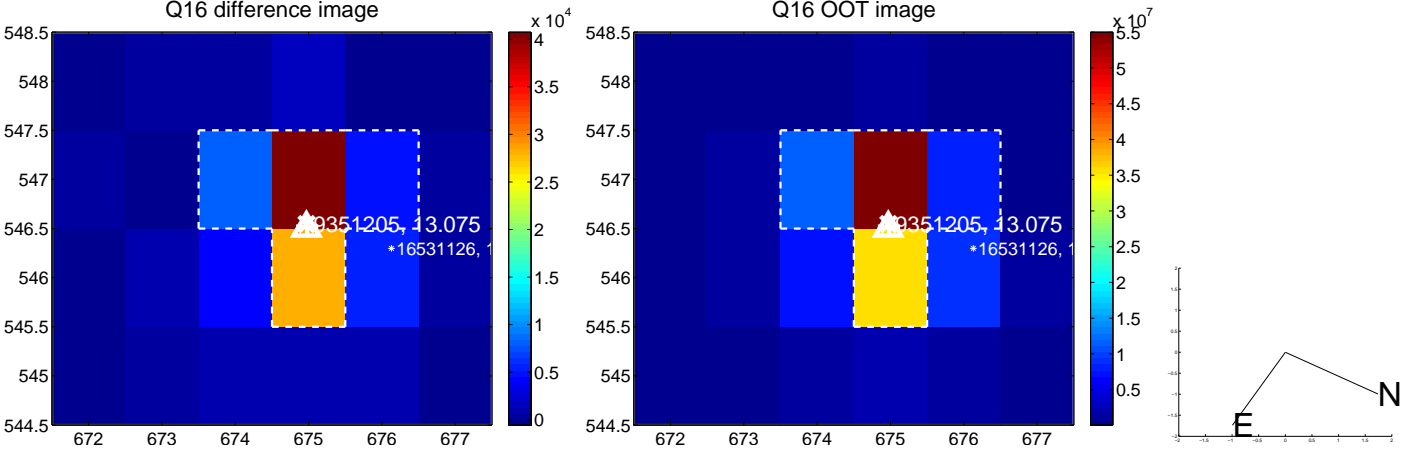
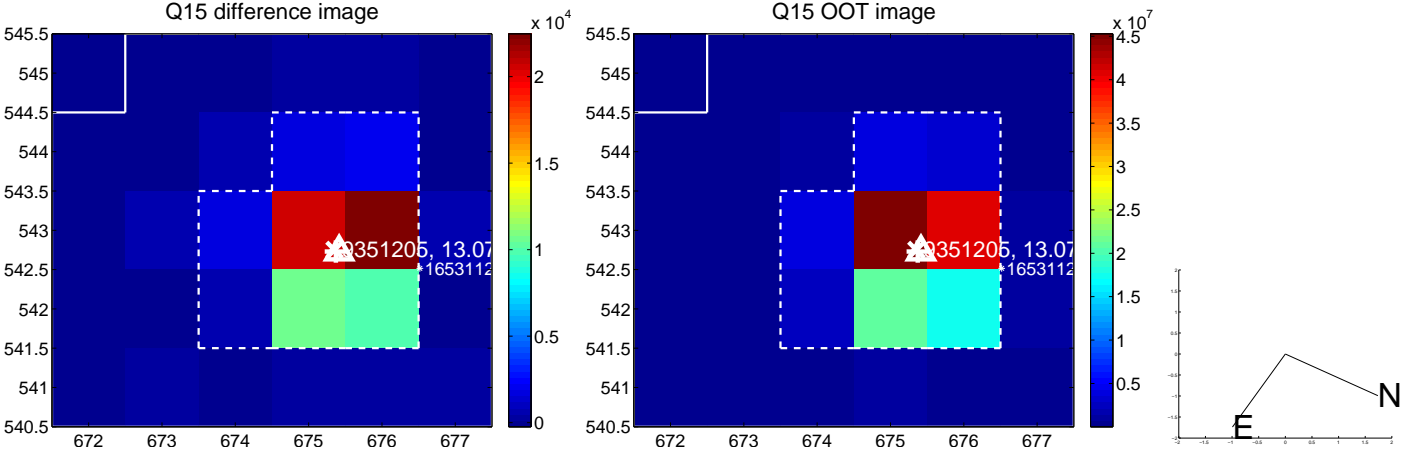
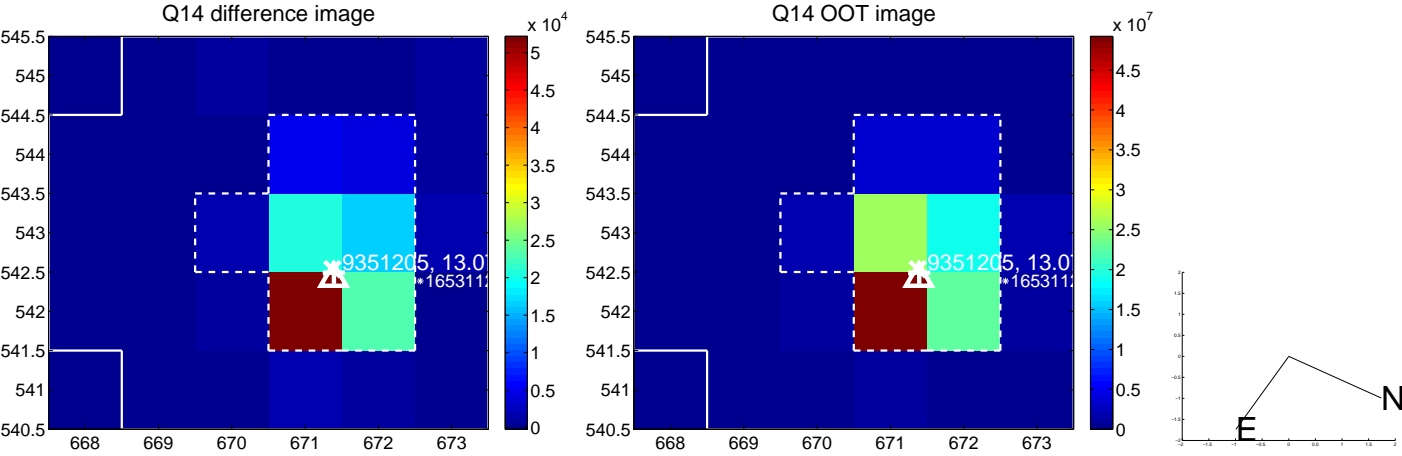
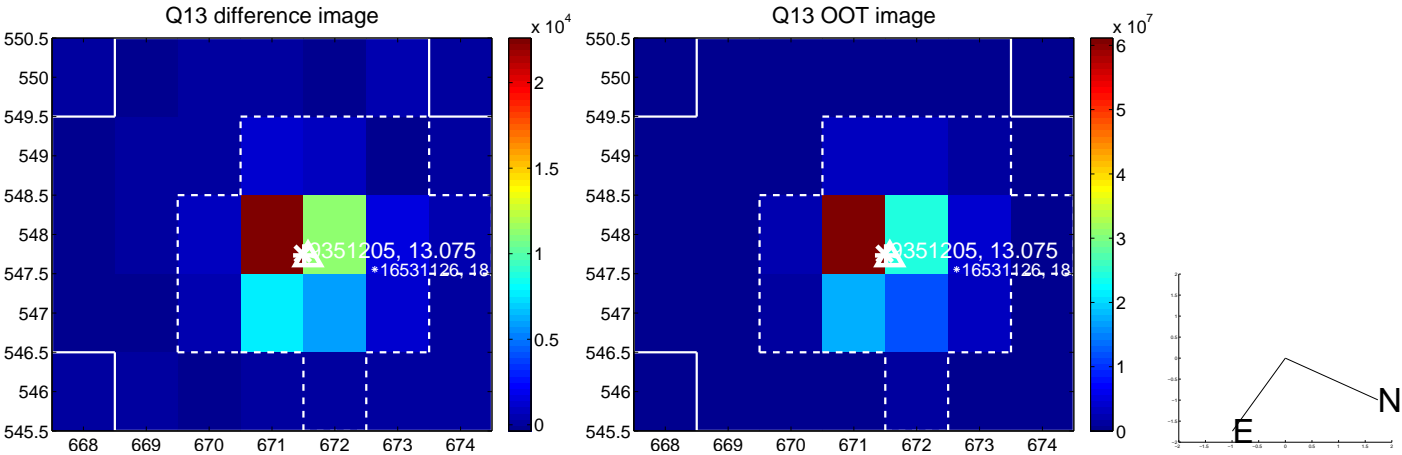
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



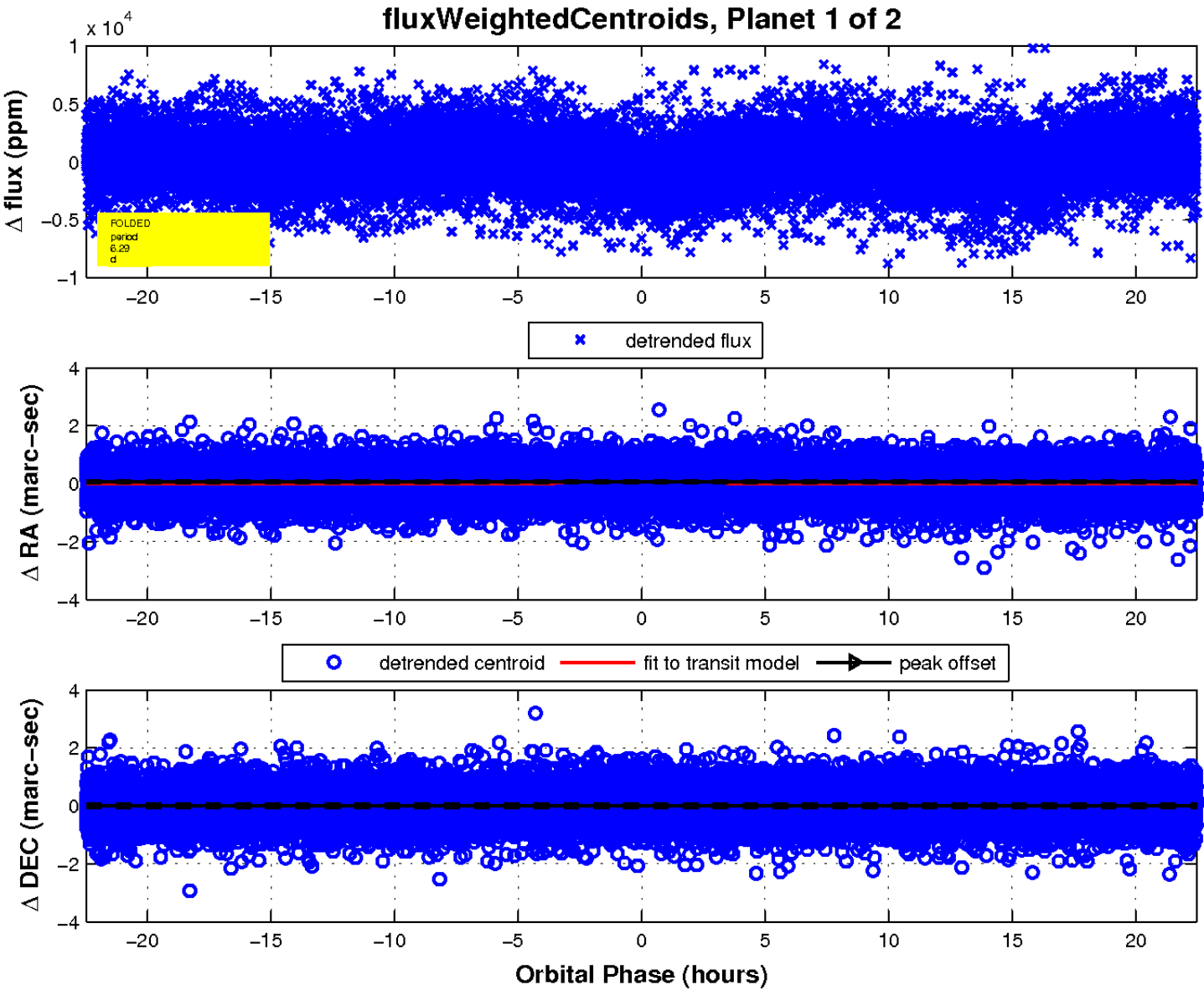
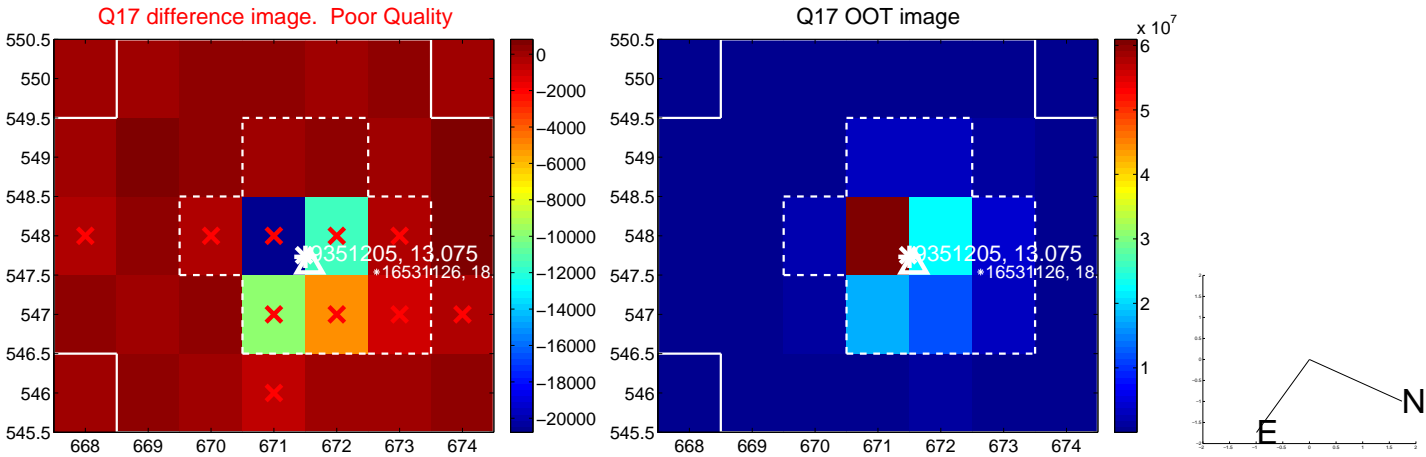
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

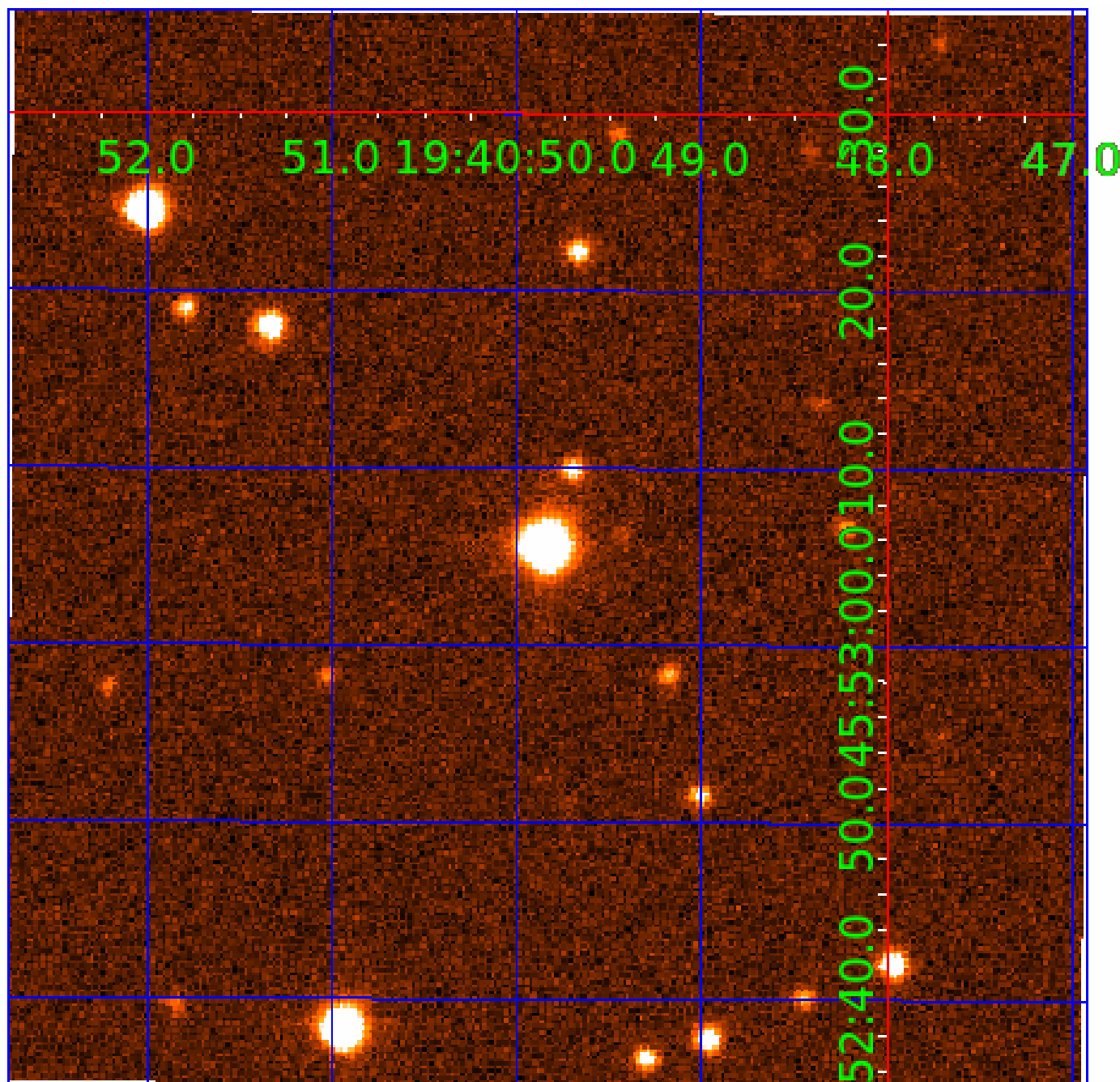


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009351205

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})
009351205-01	OBS	No	6.287261	137.156874	330.4	7.494	8.9	8.7	1.70	7373	3.58	1269.60
009351205-02	OBS	No	0.571545	131.983640	150.3	5.527	7.7	10.5	1.70	7373	2.12	31060.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009351205-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009351205-02	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

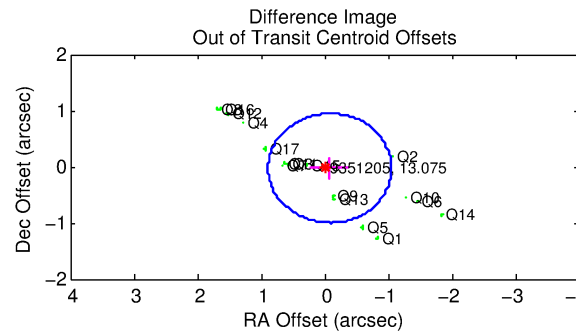
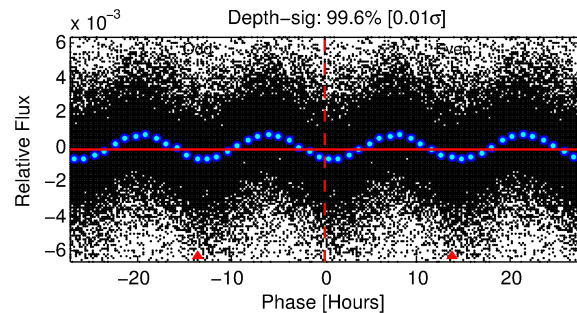
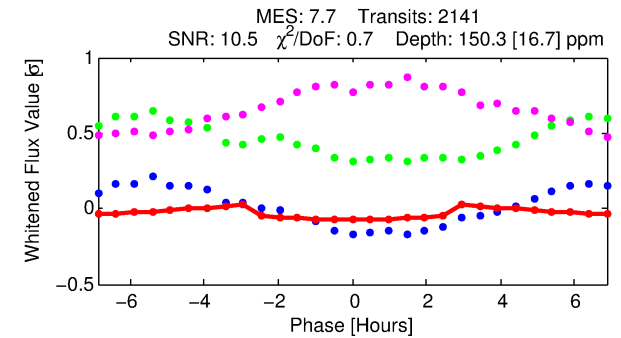
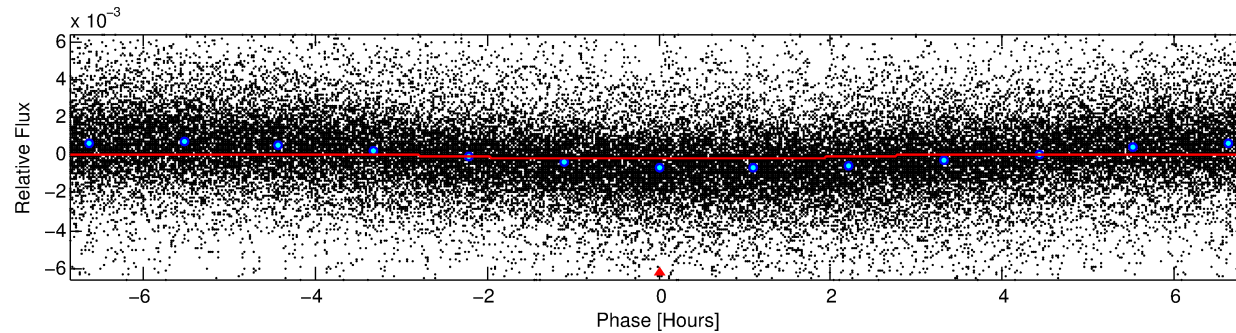
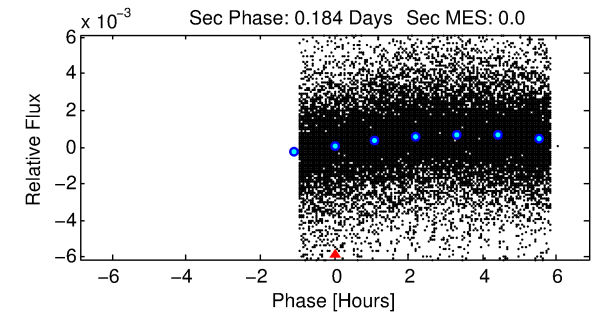
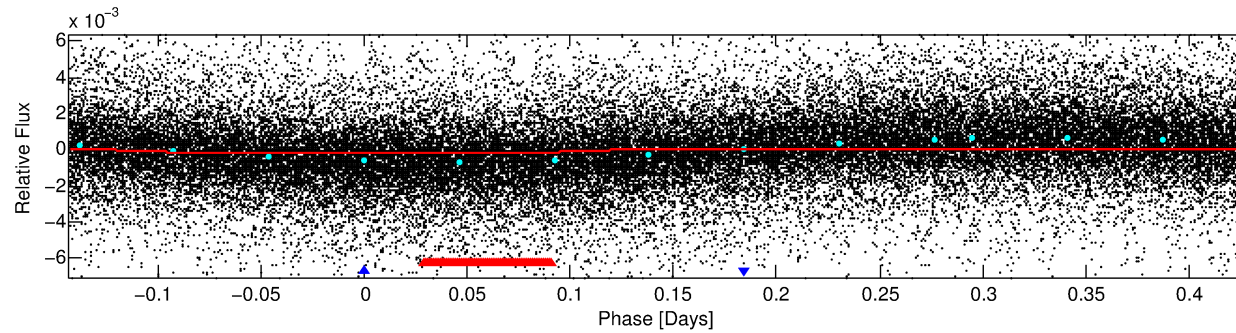
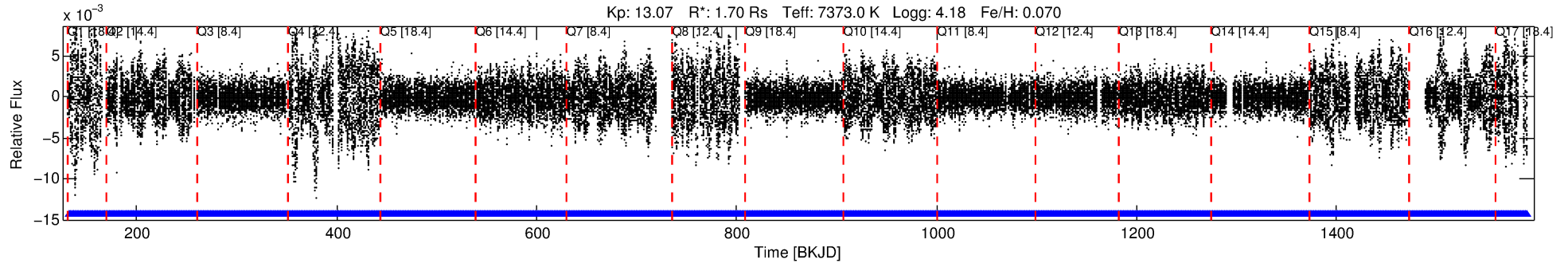
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009351205-02

No Significant Match Found

DV One-Page Summary

KIC: 9351205 Candidate: 2 of 2 Period: 0.572 d



DV Fit Results:

Period = 0.57154 [0.00001] d
Epoch = 131.9836 [0.0025] BKJD
Rp/R* = 0.0114 [0.0053]
a/R* = 1.06 [0.32]
b = 0.11 [24.66]
Seff = 31060.89 [13340.96]
Teq = 3385 [363] K
Rp = 2.12 [1.23] Re
a = 0.0157 [0.0043] AU
Ag = N/A
Teffp = N/A

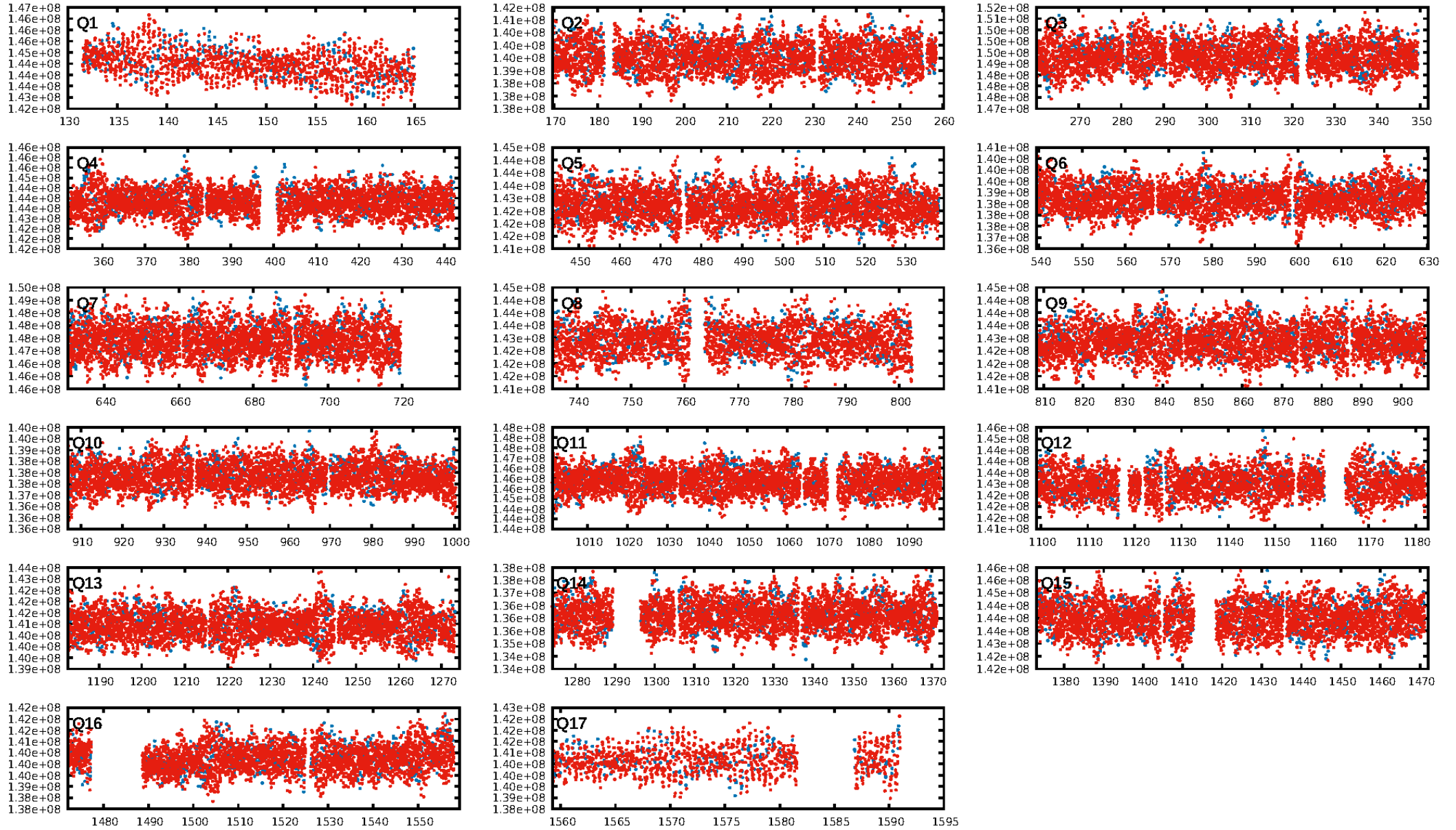
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [14.73σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2044/2044]
GhostDiagnostic-chr: 2.364
Centroid-sig: 0.0%
Centroid-so: 0.224 arcsec [2.77σ]
OotOffset-rm: 0.086 arcsec [0.27σ]
KicOffset-rm: 0.077 arcsec [0.47σ]
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]

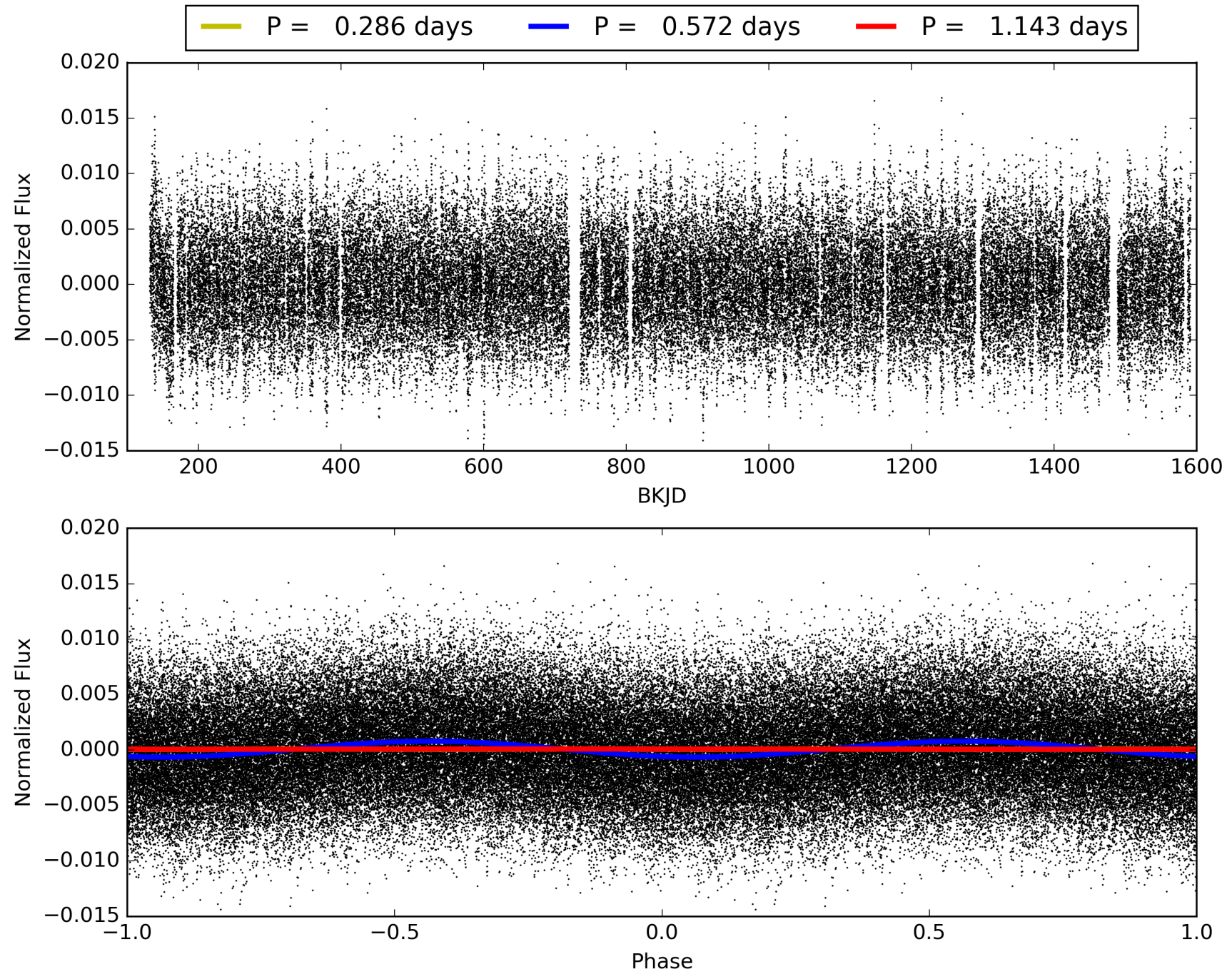
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 22:44:38 Z

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

TCE 009351205-02, PDC Light Curves

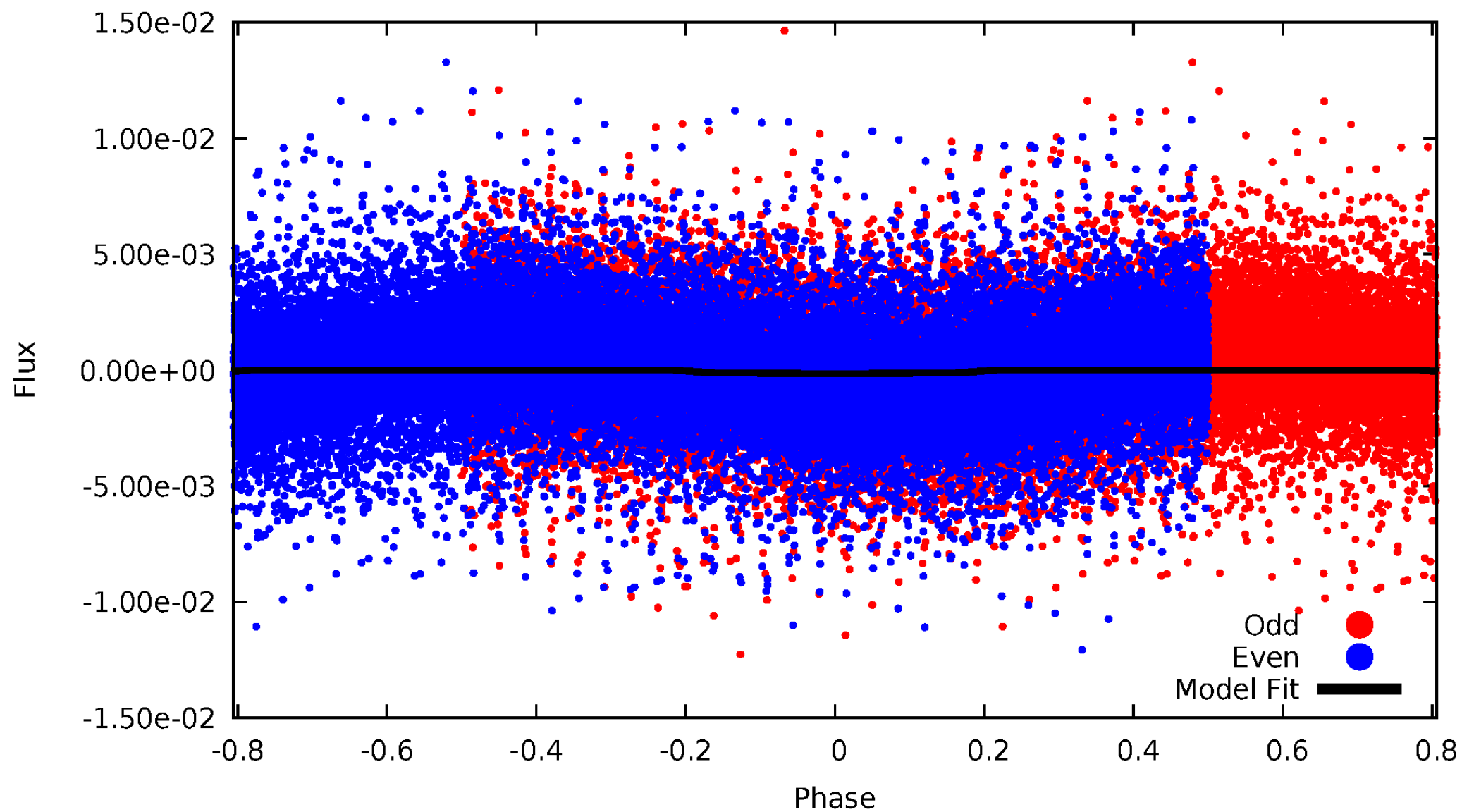


TCE 009351205-02



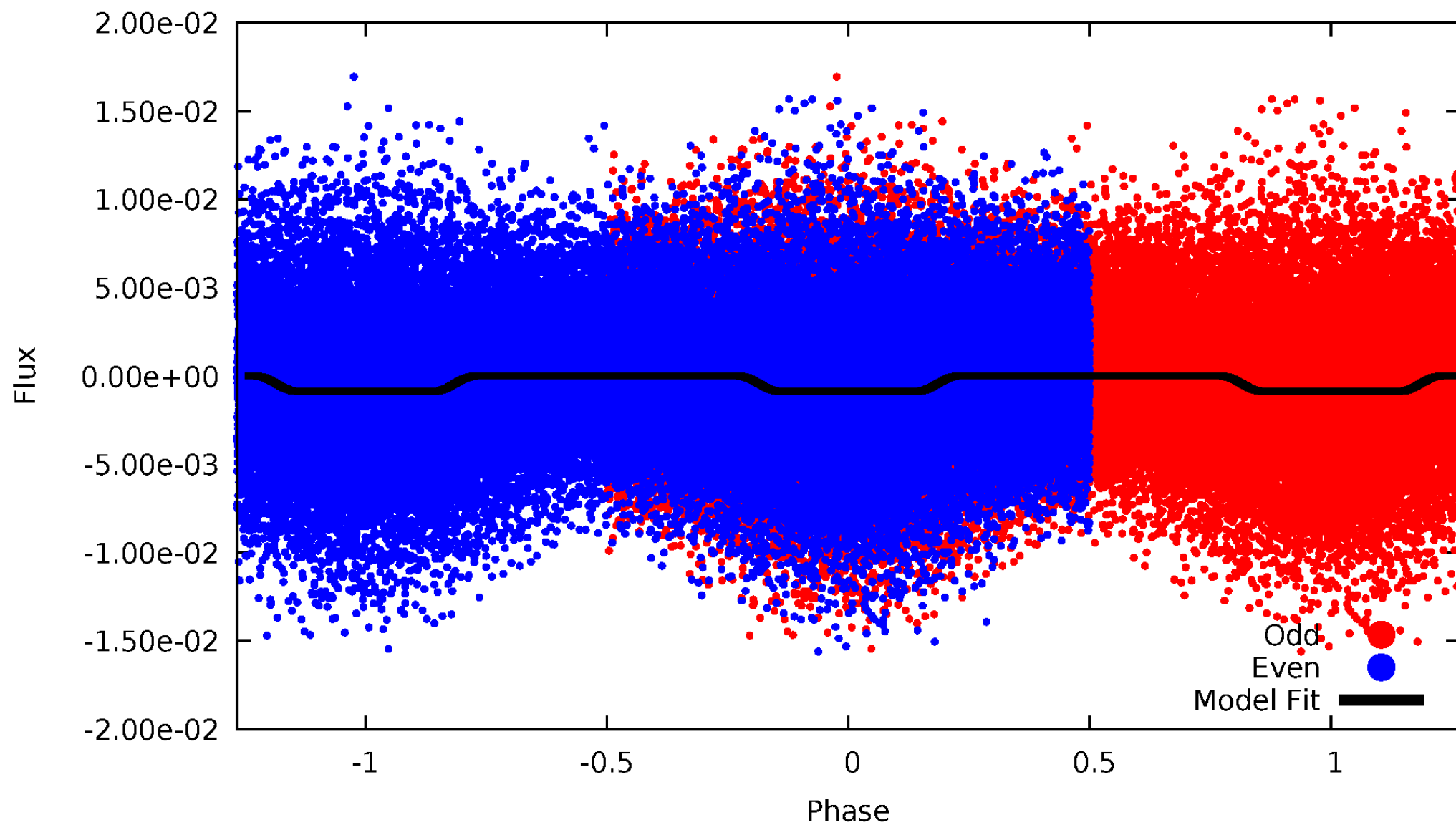
DV Odd/Even

TCE 009351205-02



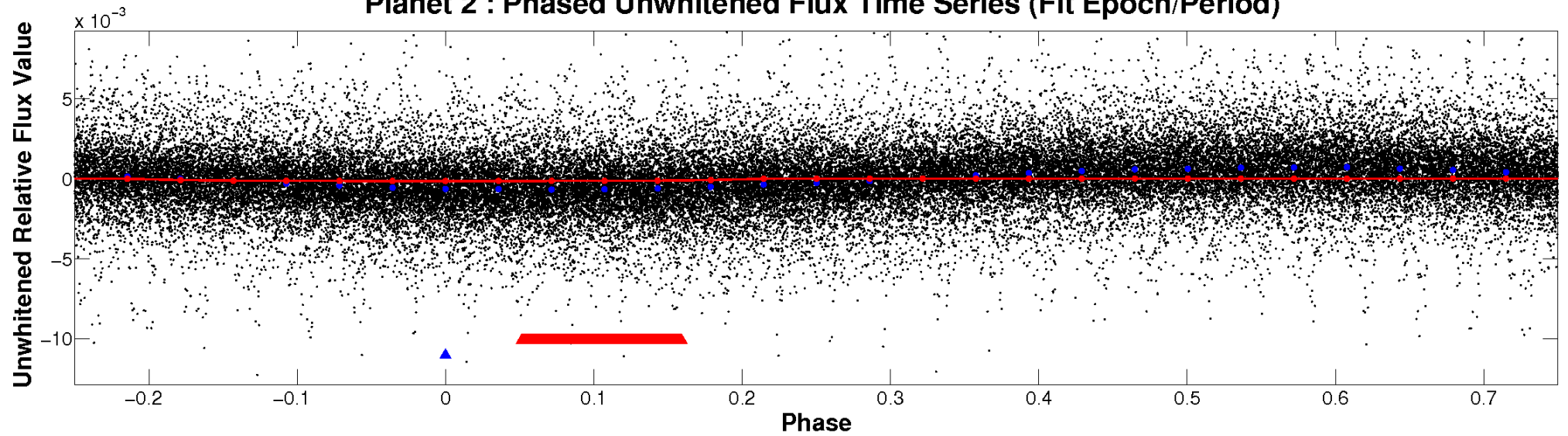
ALT Odd/Even

TCE 009351205-02

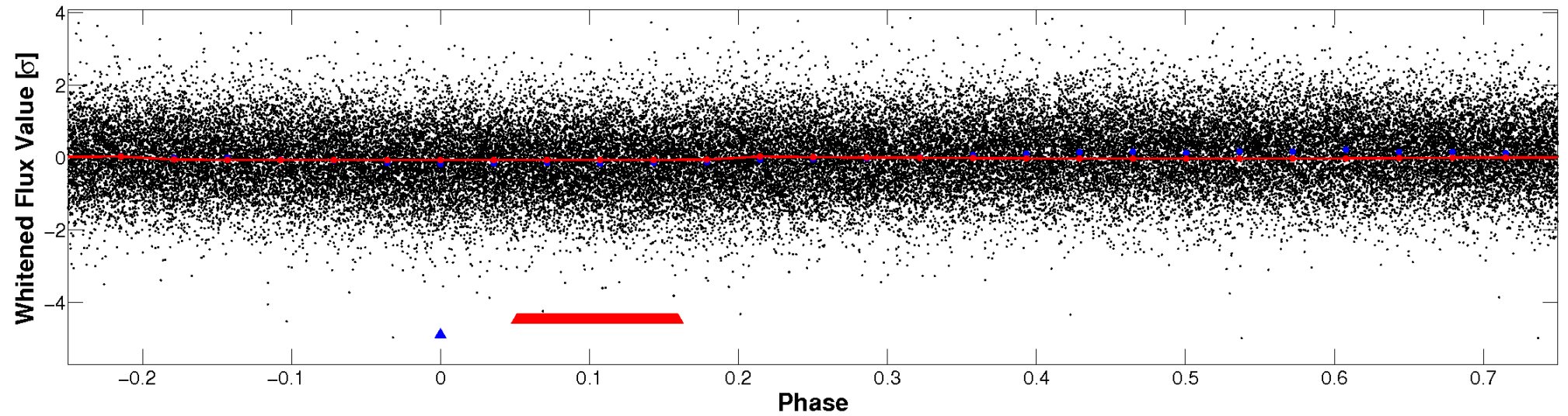


Non-Whitened Vs. Whitened Light Curve

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

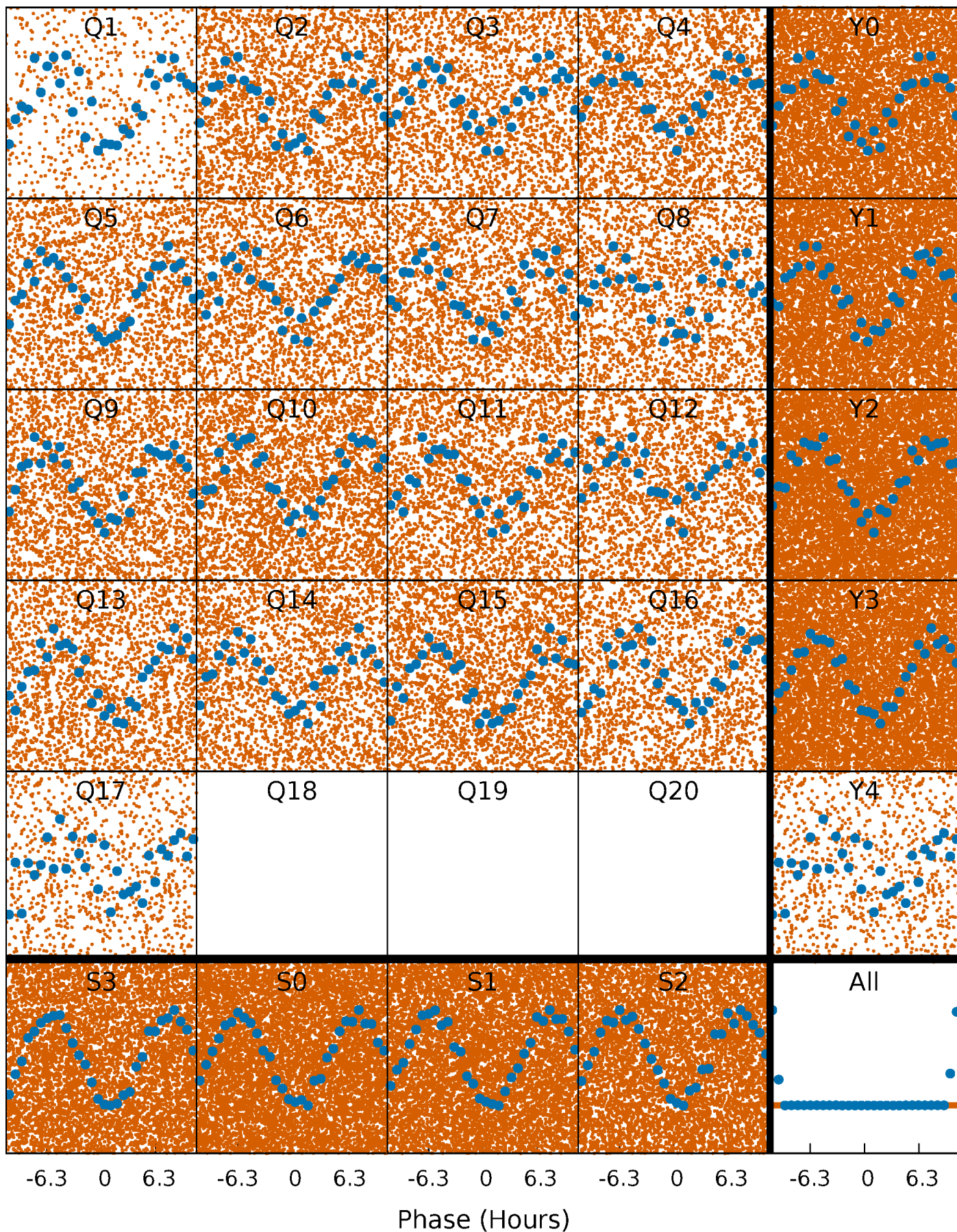


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



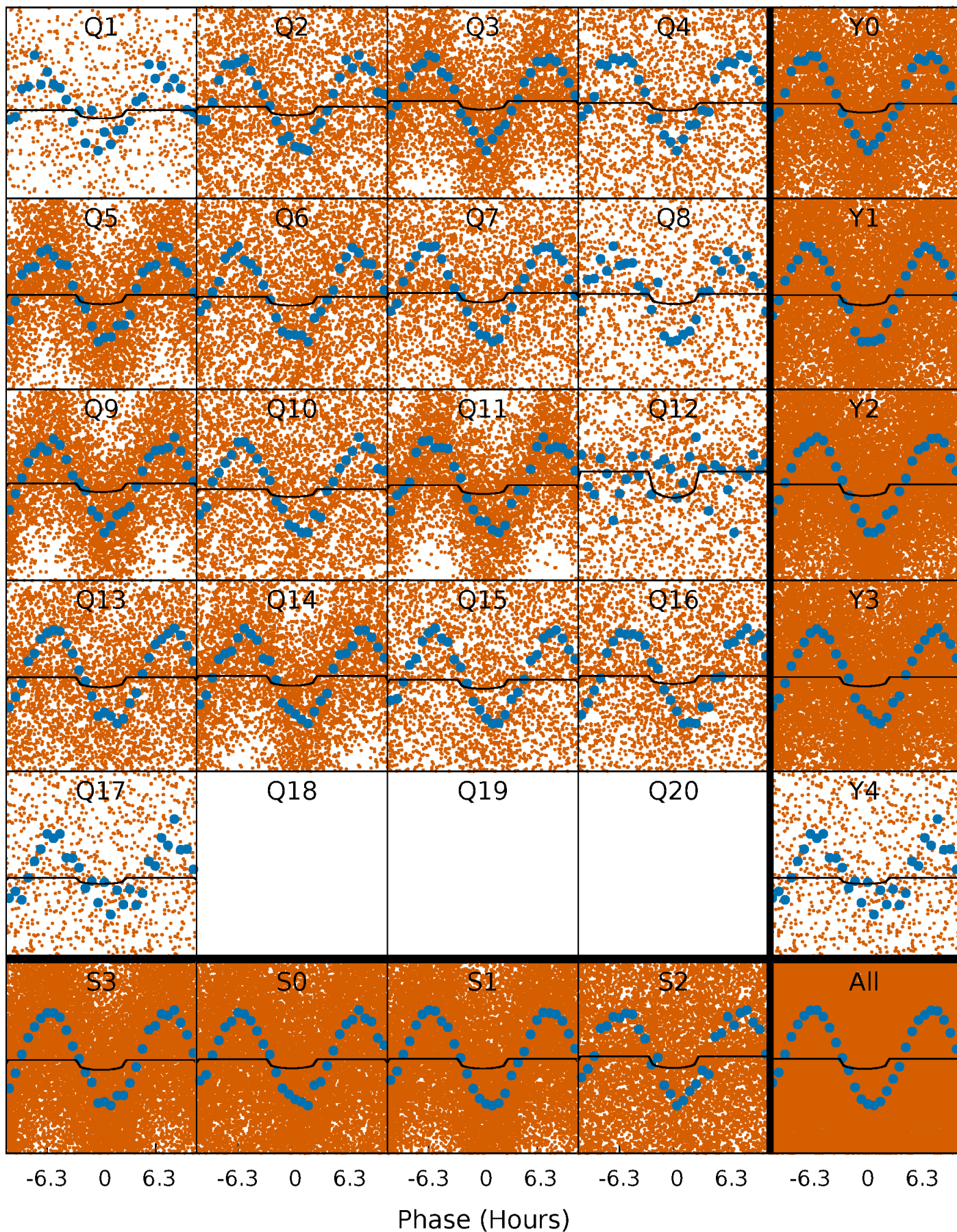
PDC Quarter-Phased Transit Curves

TCE 009351205-02 P= 0.571545 Days $T_0=131.983640$ (BKJD)



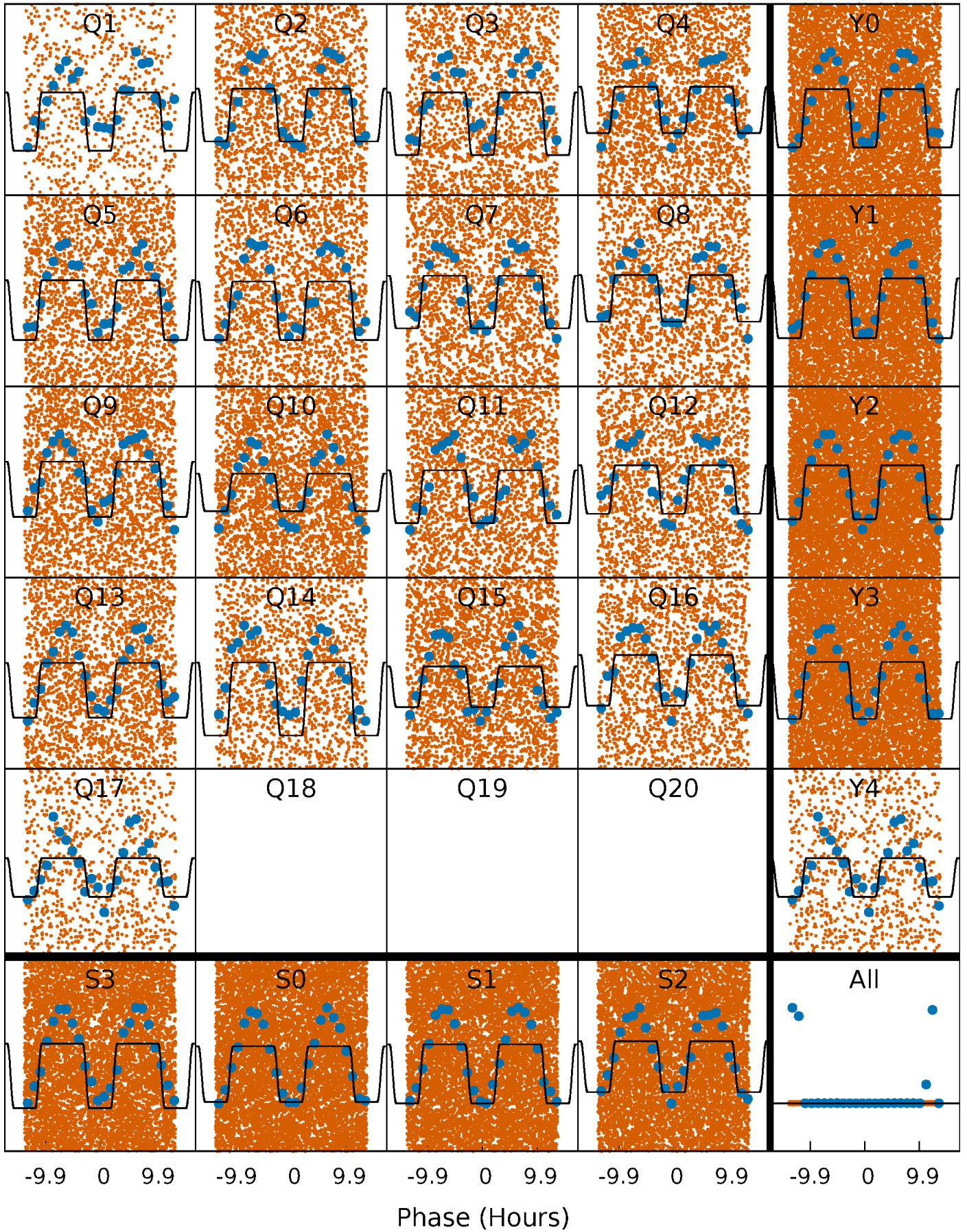
DV Quarter-Phased Transit Curves

TCE 009351205-02 P= 0.571545 Days $T_0=131.983640$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

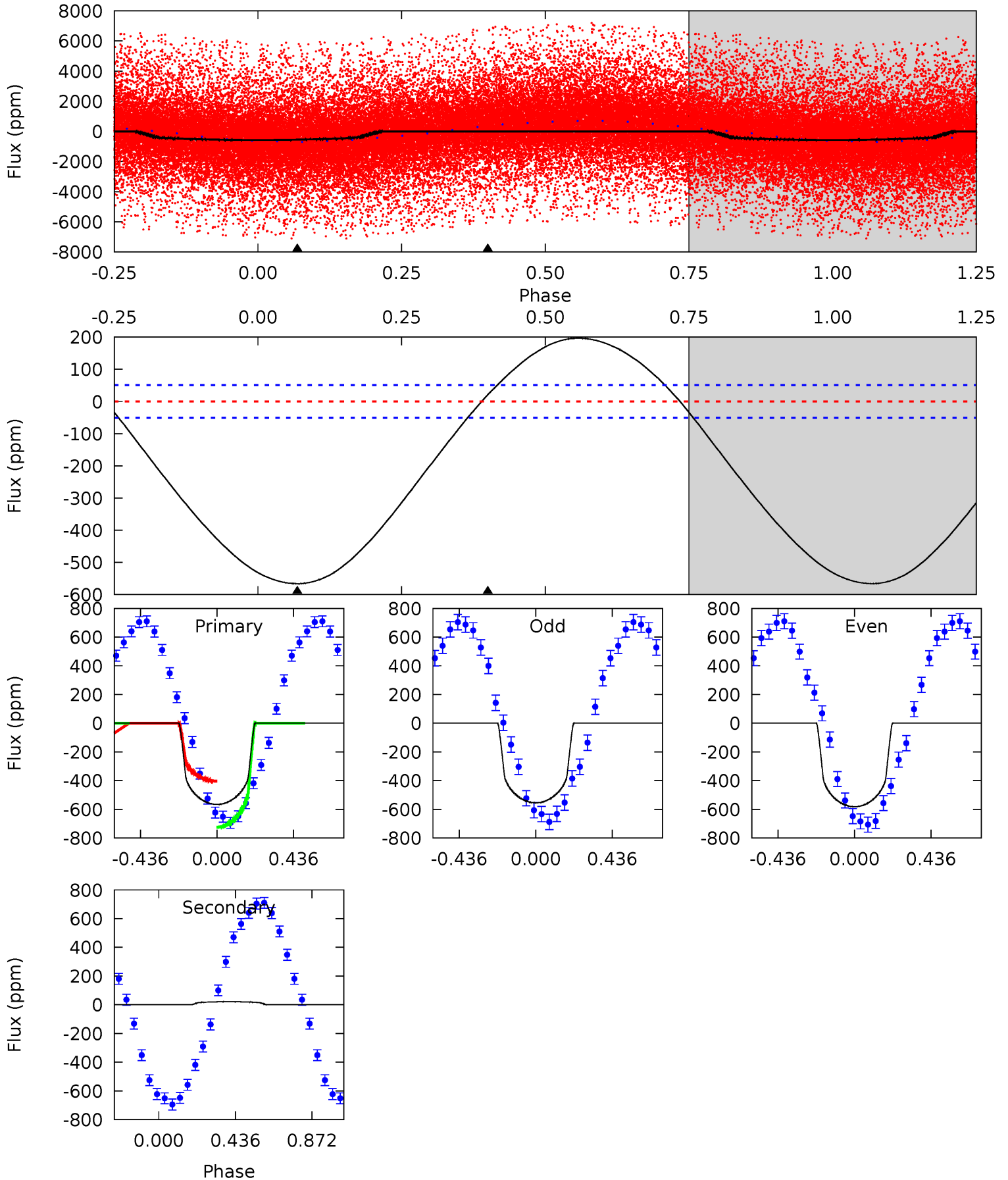
TCE 009351205-02 P= 0.571584 Days $T_0=131.969979$ (BKJD)



DV Model-Shift Uniqueness Test

009351205-02, P = 0.571545 Days, E = 131.412095 Days

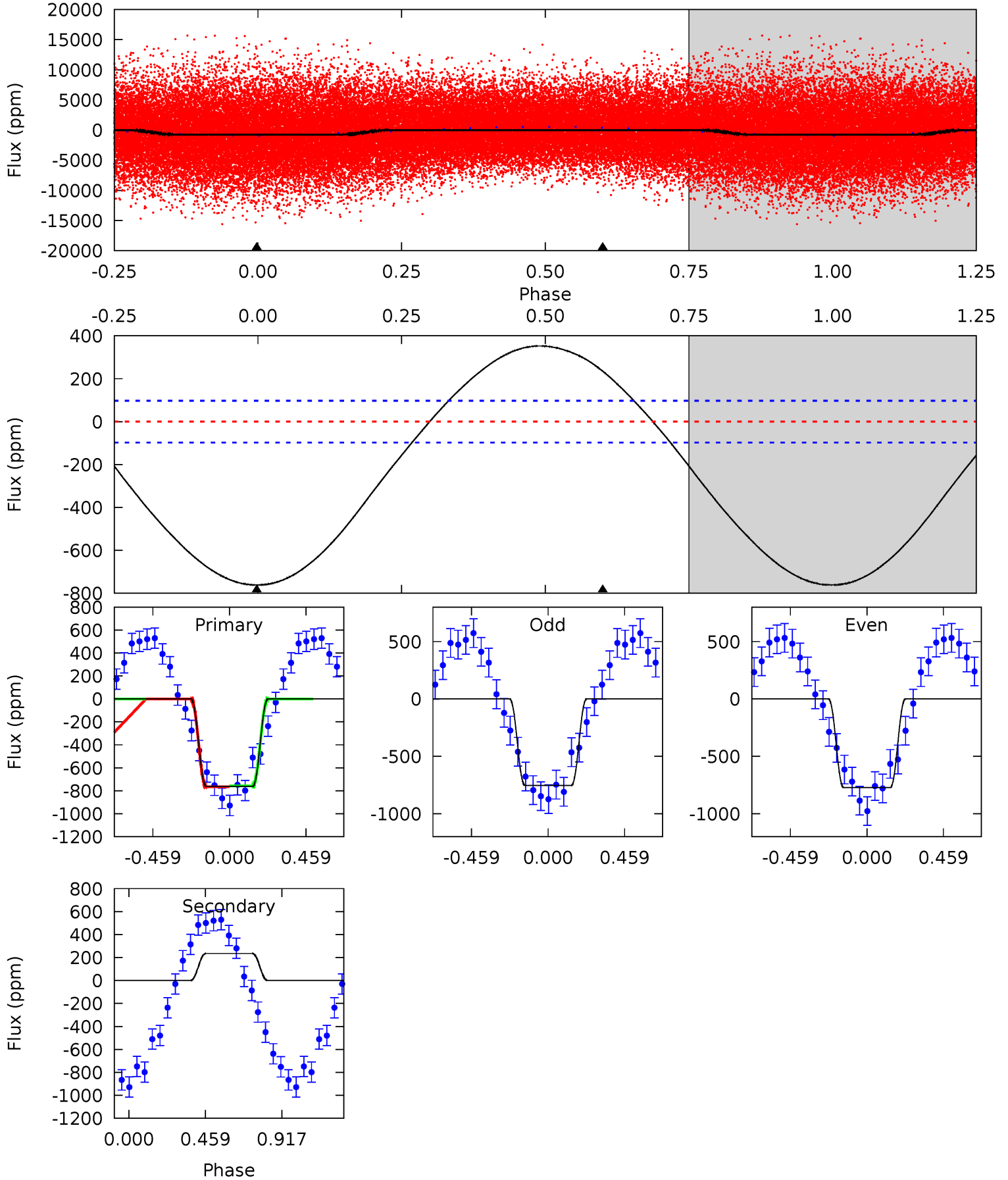
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.2	-1.77	0	0	4.25	0.78	5.24	47.2	47.2	-1.77	-1.77	1.16	1.05	0.26	13.5



Alt Model-Shift Uniqueness Test

009351205-02, P = 0.571584 Days, E = 131.398395 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.1	-10.2	0	0	4.23	0.74	4.09	33.1	33.1	-10.2	-10.2	0.43	1.10	0.32	0.19



Stellar Parameters For KIC 009351205

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7373^{+203}_{-348}	$4.176^{+0.087}_{-0.203}$	$0.070^{+0.200}_{-0.350}$	$1.703^{+0.581}_{-0.249}$	$1.590^{+0.203}_{-0.226}$	$0.453^{+0.224}_{-0.241}$
	+3%/-5%	+2%/-5%	+286%/-500%	+34%/-15%	+13%/-14%	+50%/-53%
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 009351205-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	21 ± 12	$2.20^{+1.16}_{-0.99}$	4779^{+362}_{-286}	-5109^{+585}_{-1278}	$-0.546^{+0.385}_{-1.418}$
Alt.	235 ± 23	$5.67^{+1.33}_{-1.16}$	4767^{+382}_{-258}	-5612^{+367}_{-493}	$-0.975^{+0.334}_{-0.568}$

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 $A_{obs} \gg 1.0$

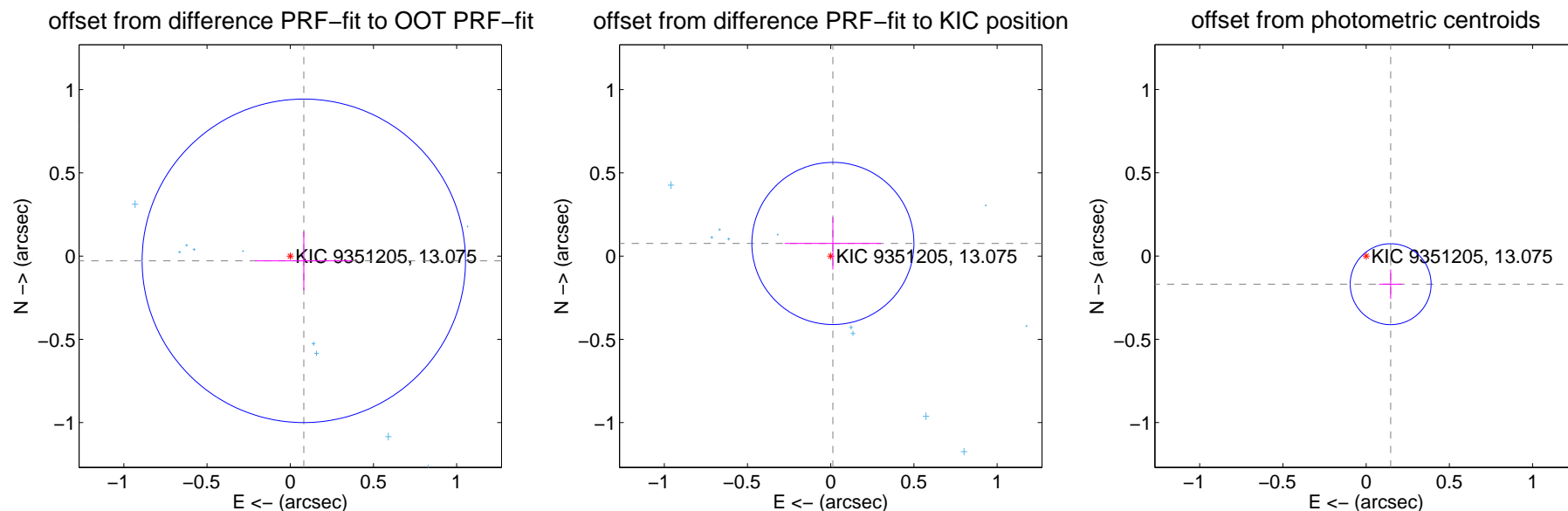
DV Centroid Data

Supplemental centroid analysis for 009351205-02. Kepler magnitude: 13.07. Transit SNR 10.54

There are 17 quarters with good PRF difference image offsets

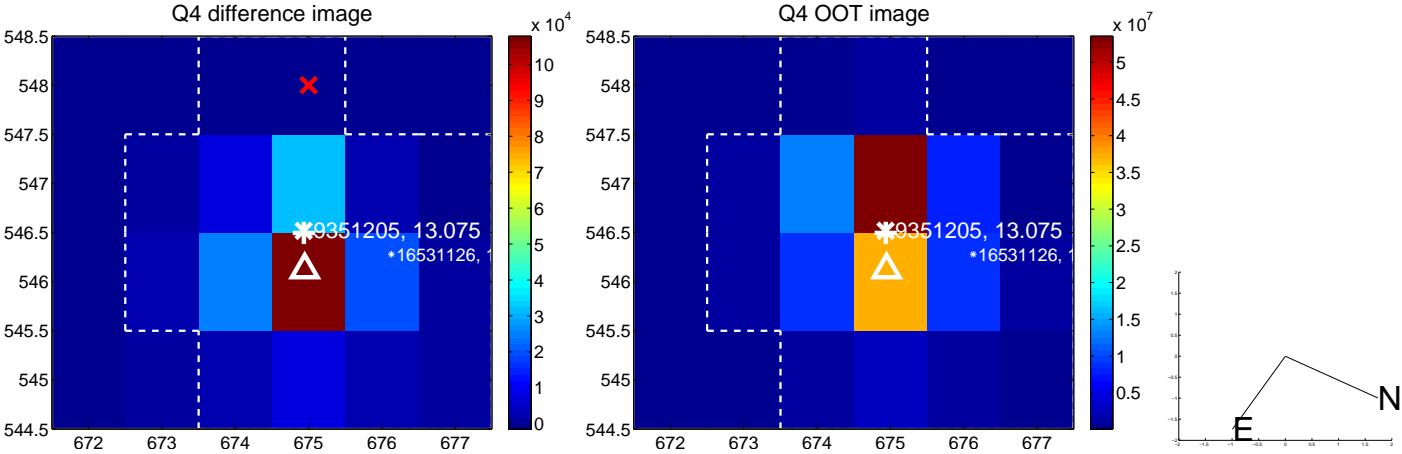
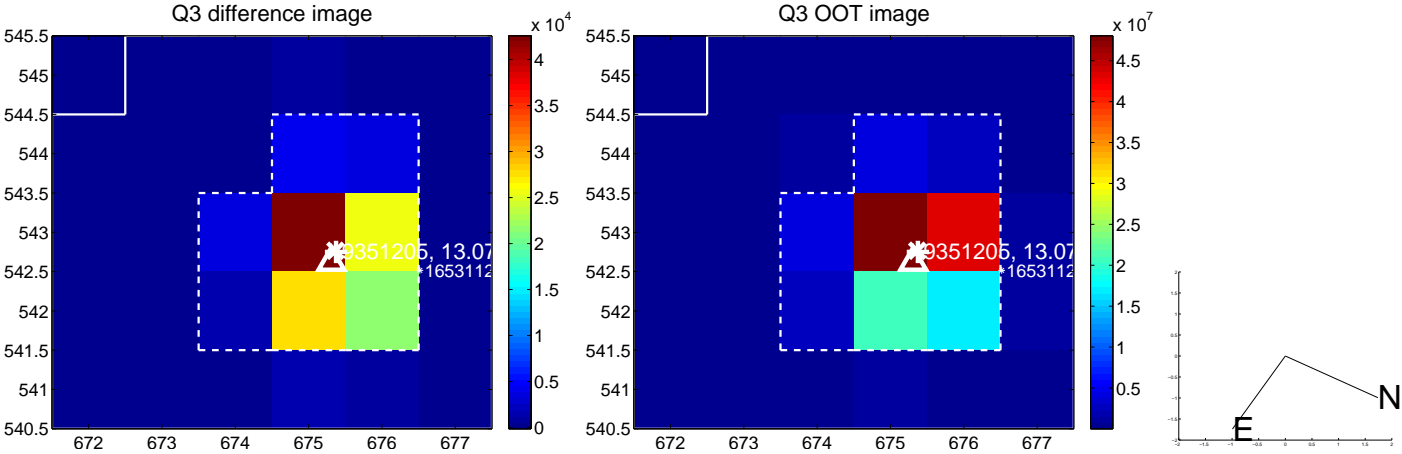
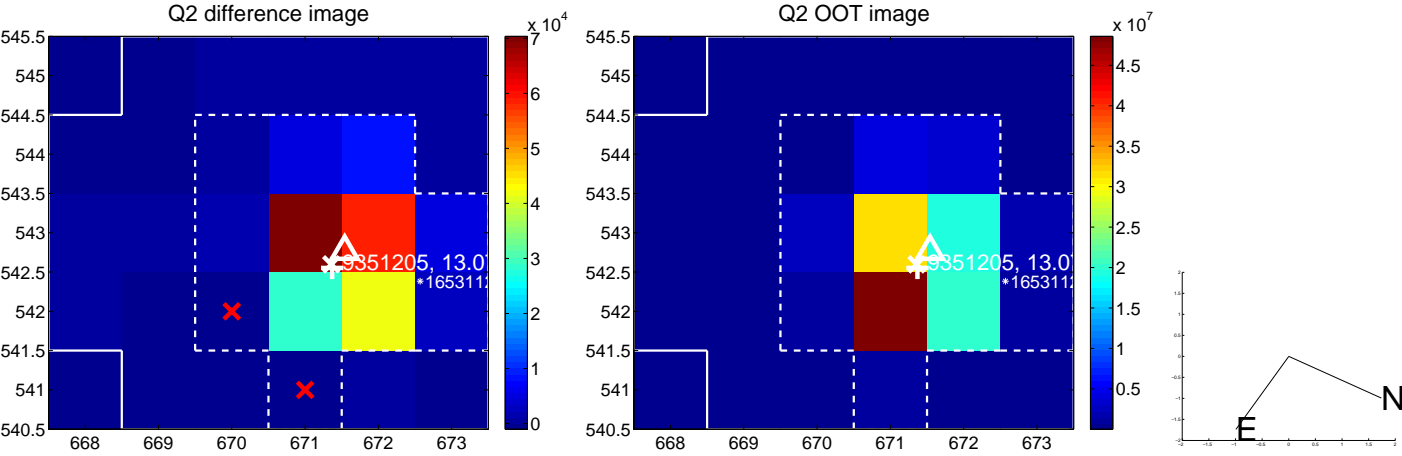
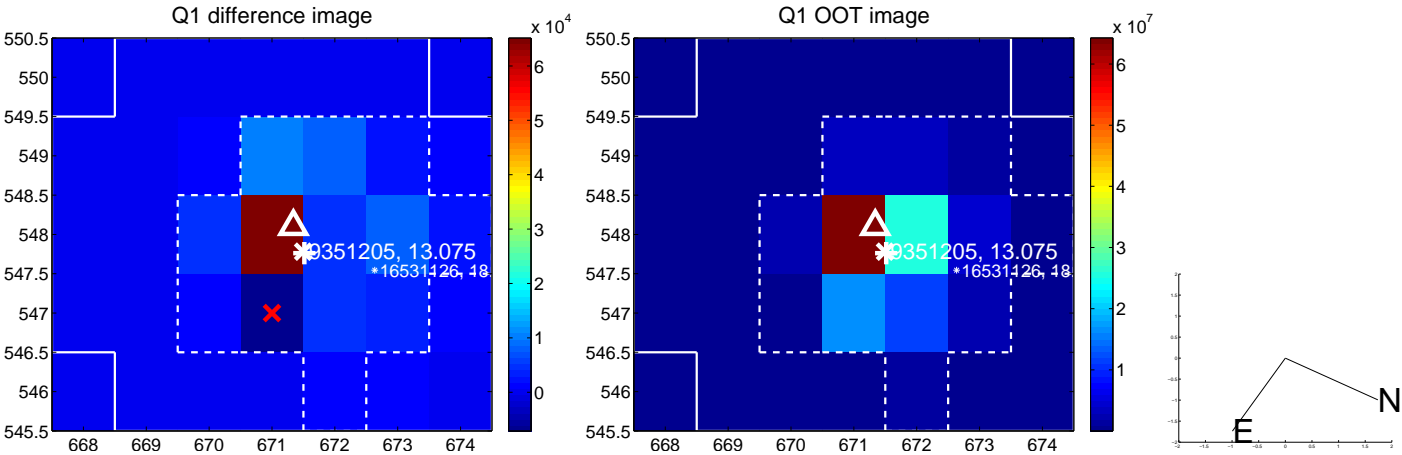
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.086 ± 0.324	0.27	-0.081 ± 0.293	-0.028 ± 0.177
PRF-fit source offset from KIC position	0.077 ± 0.162	0.47	-0.013 ± 0.290	0.076 ± 0.157
photometric centroid source offset	0.22 ± 0.08	2.77	-0.15 ± 0.07	-0.17 ± 0.09

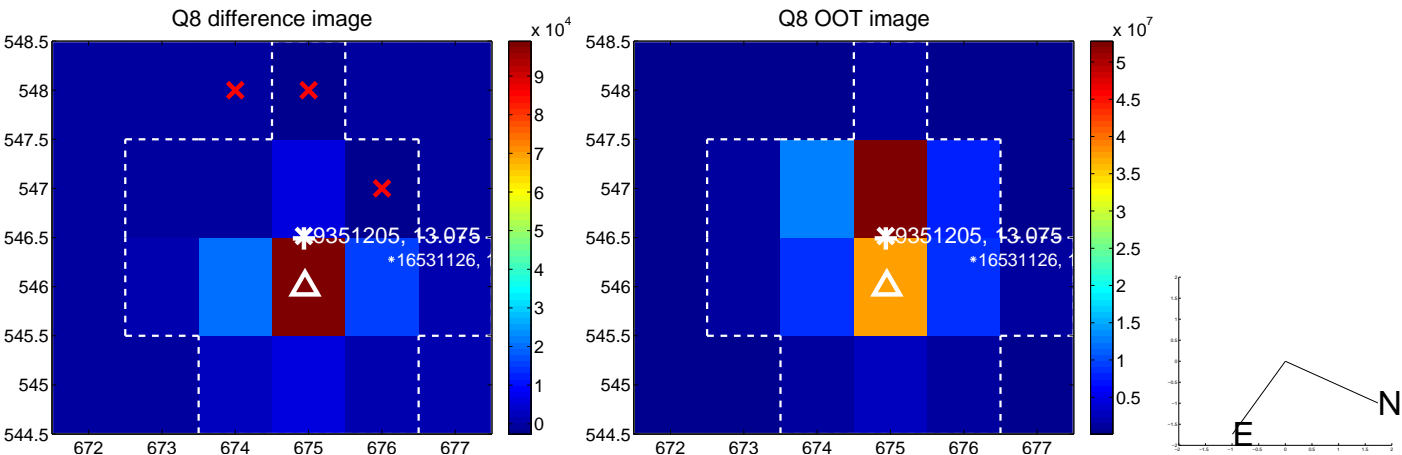
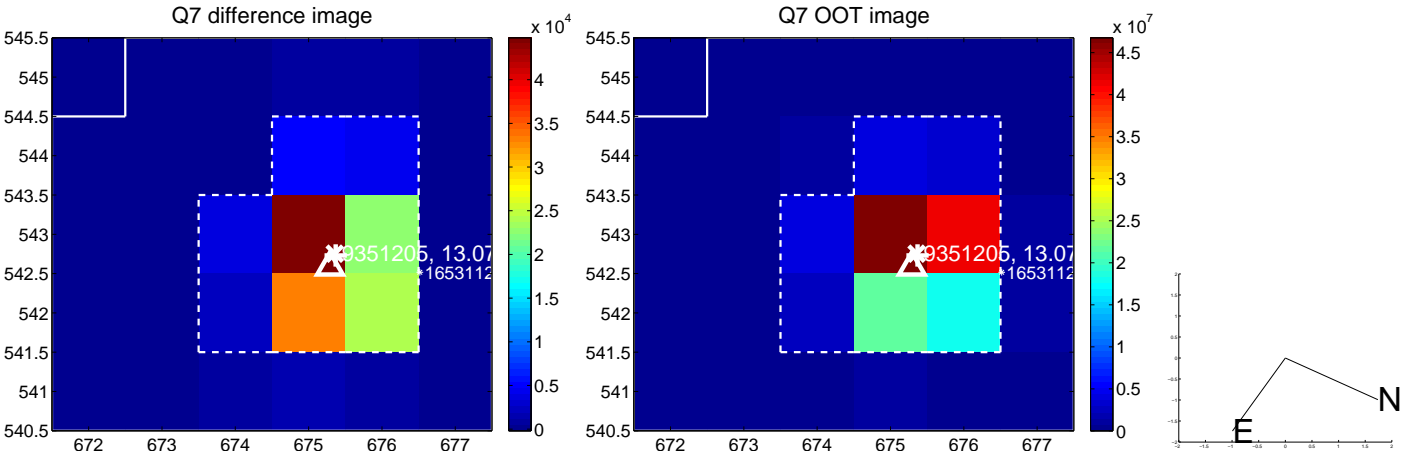
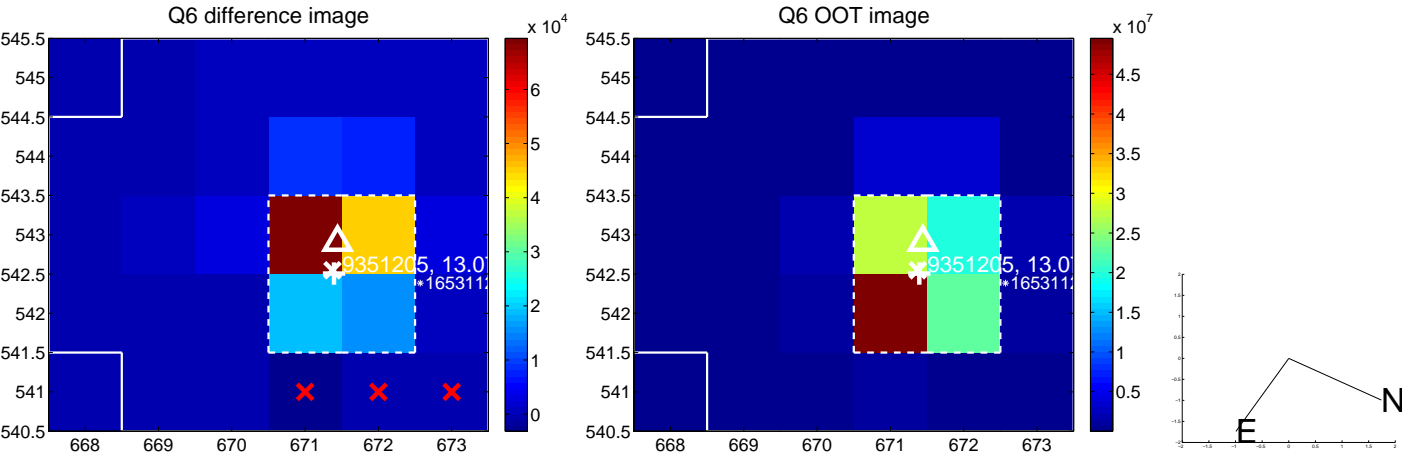
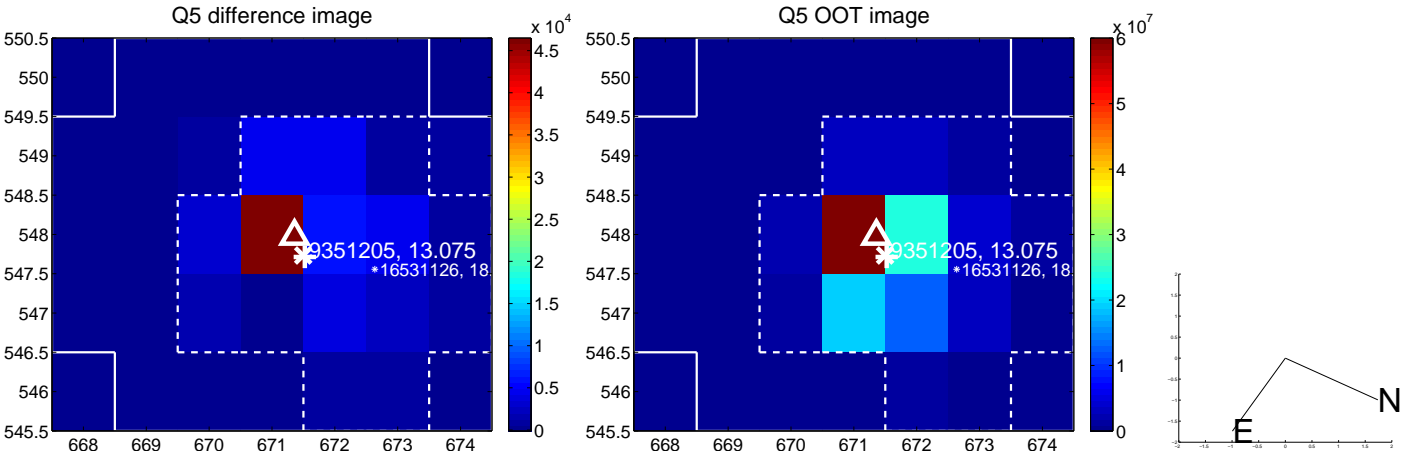


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

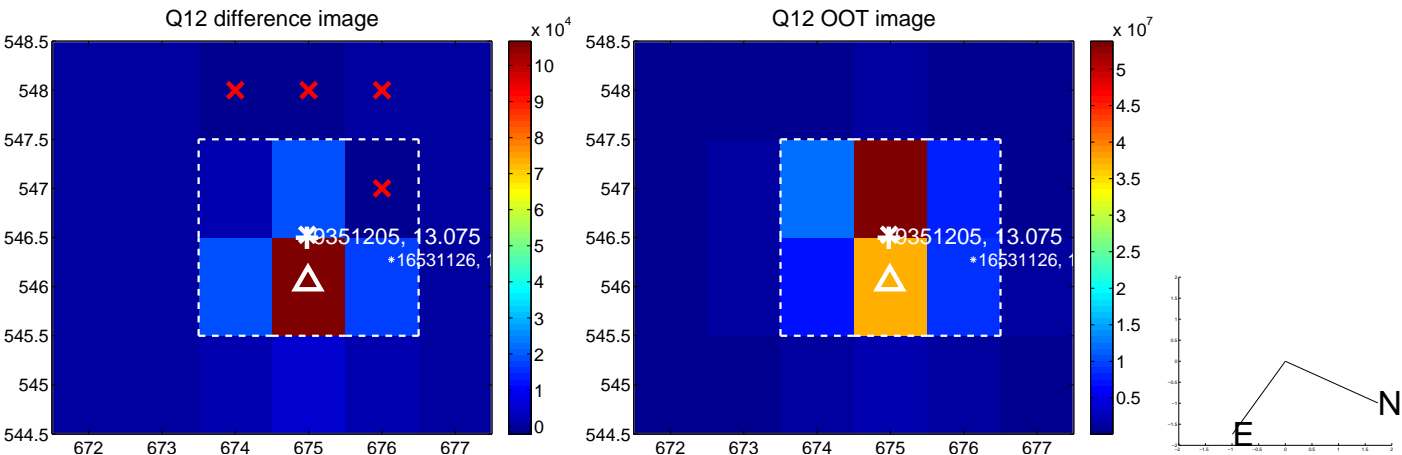
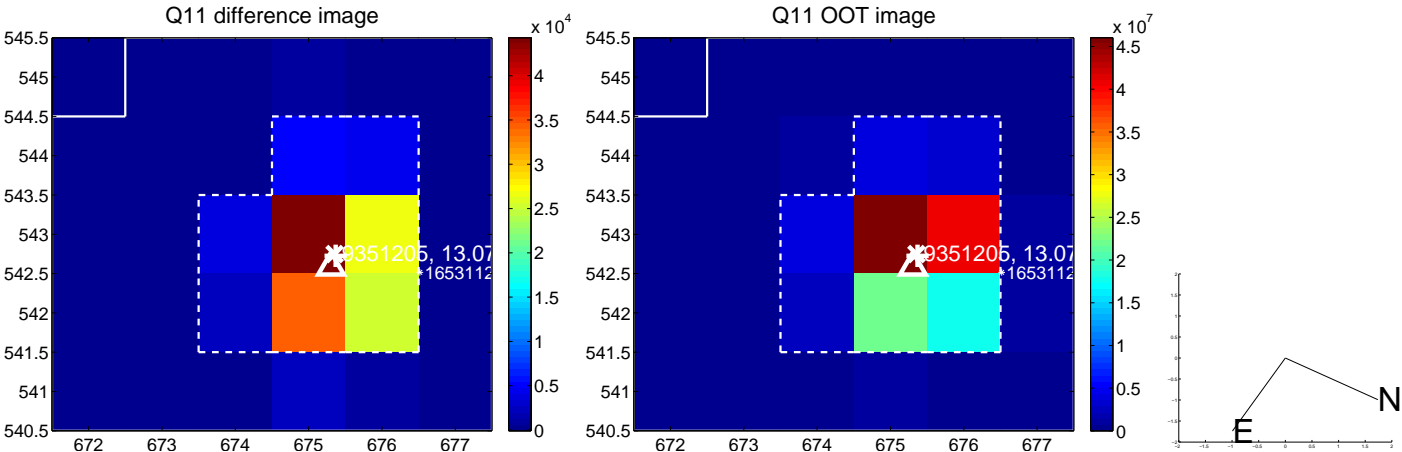
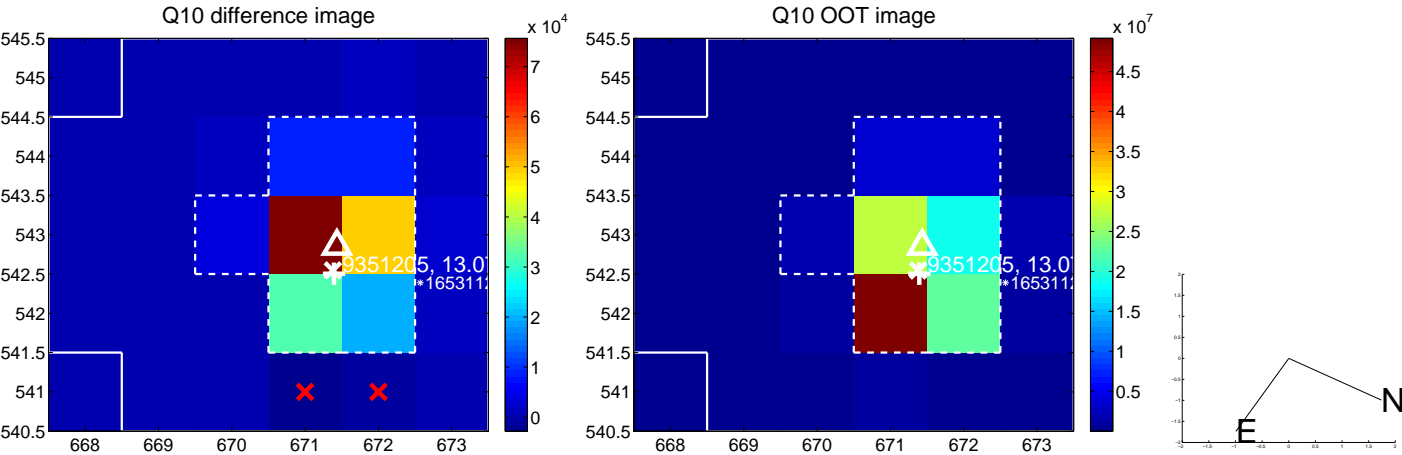
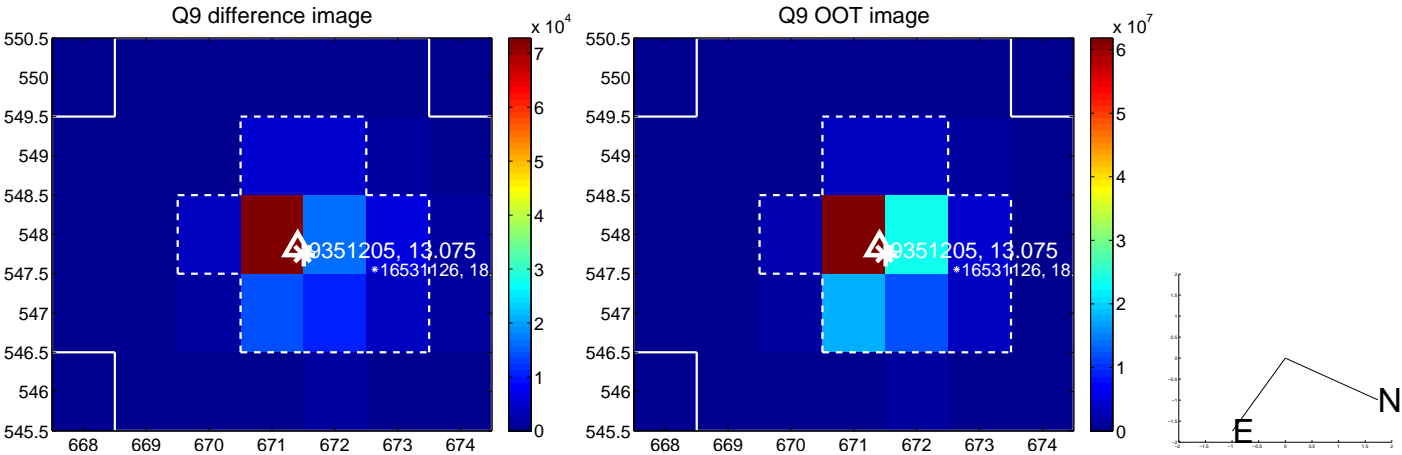
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



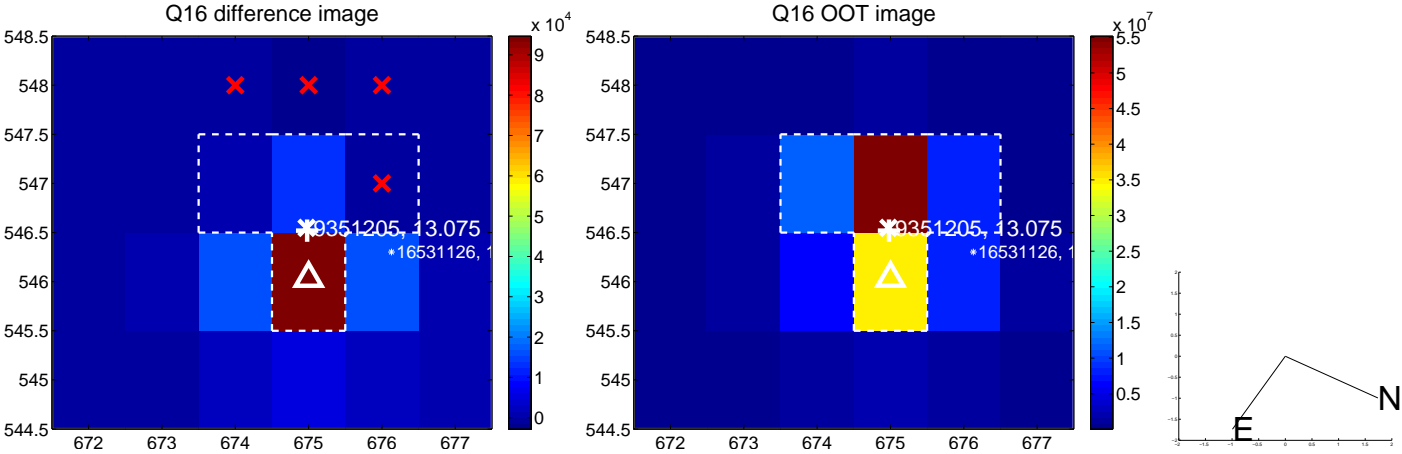
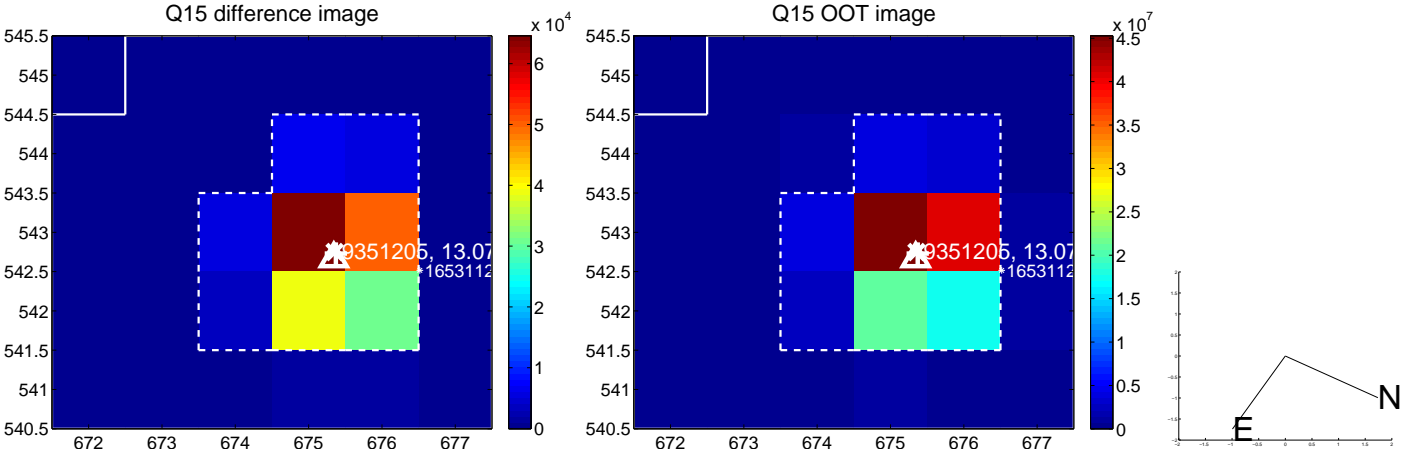
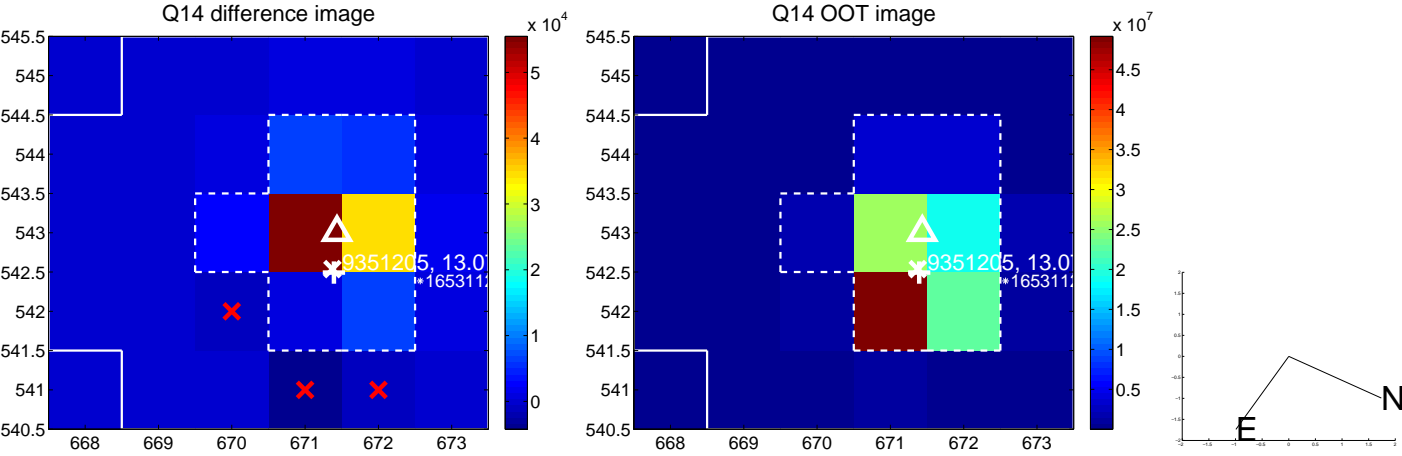
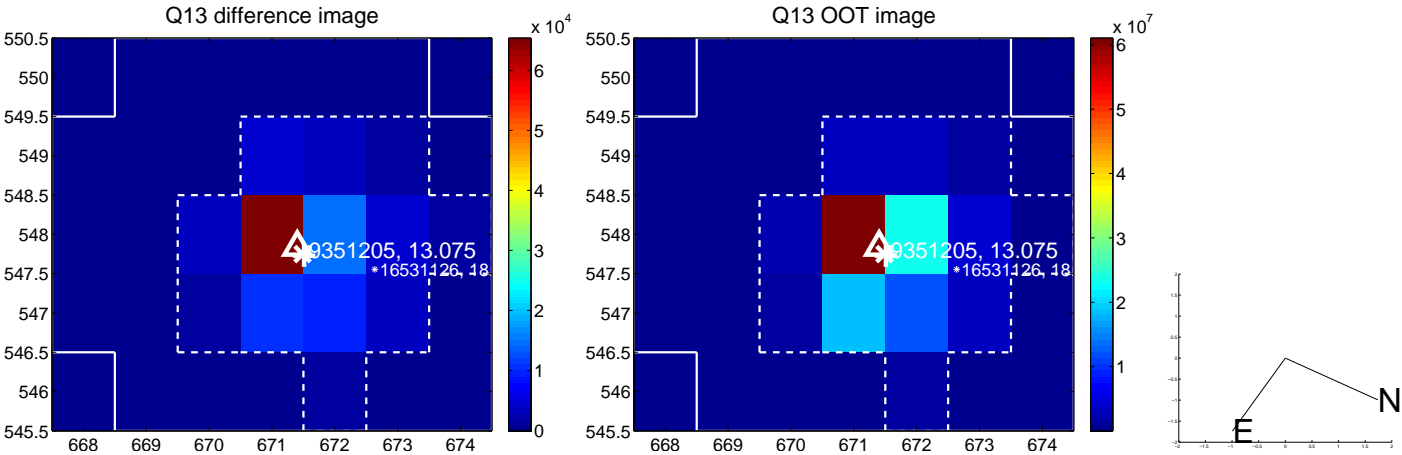
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



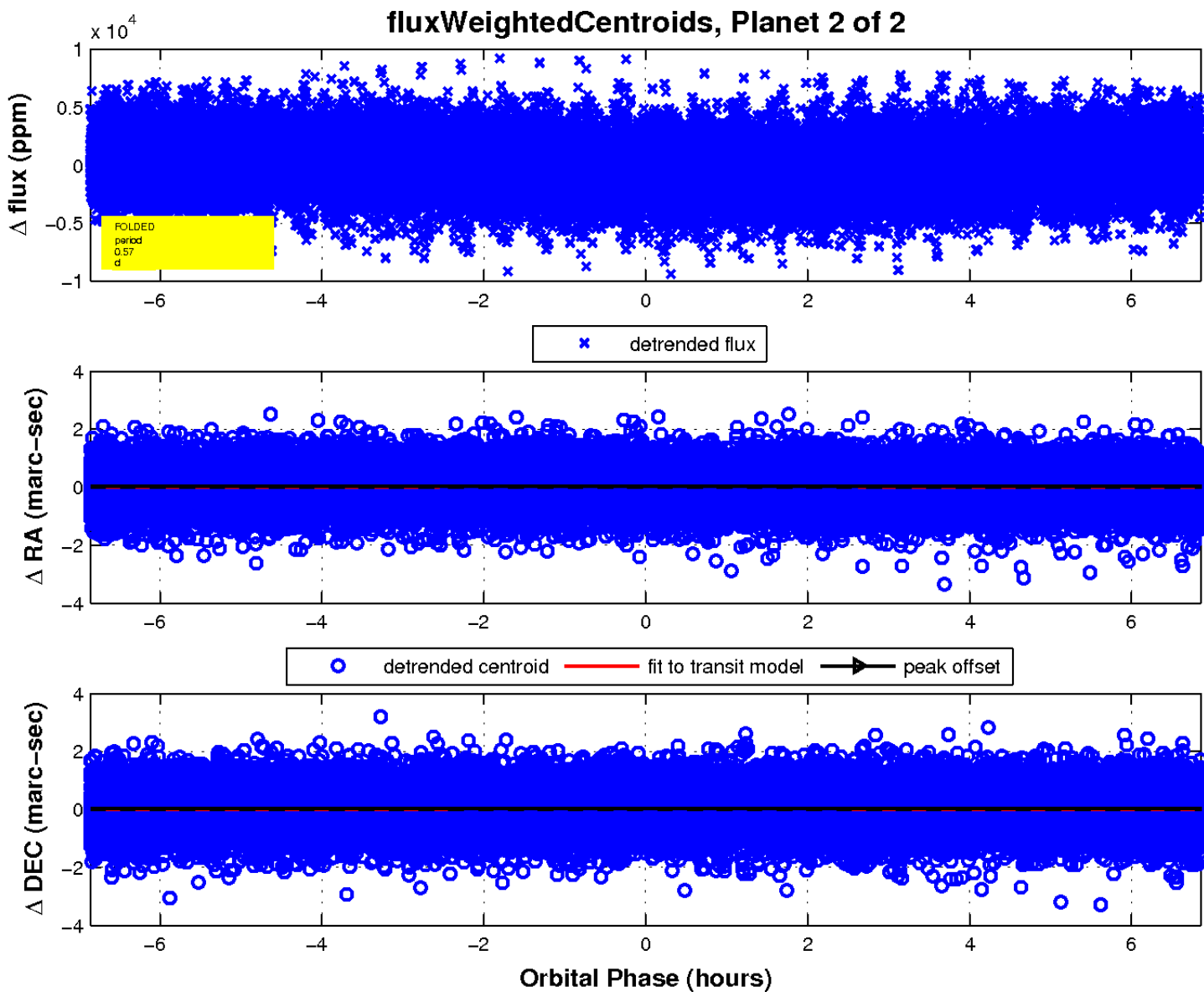
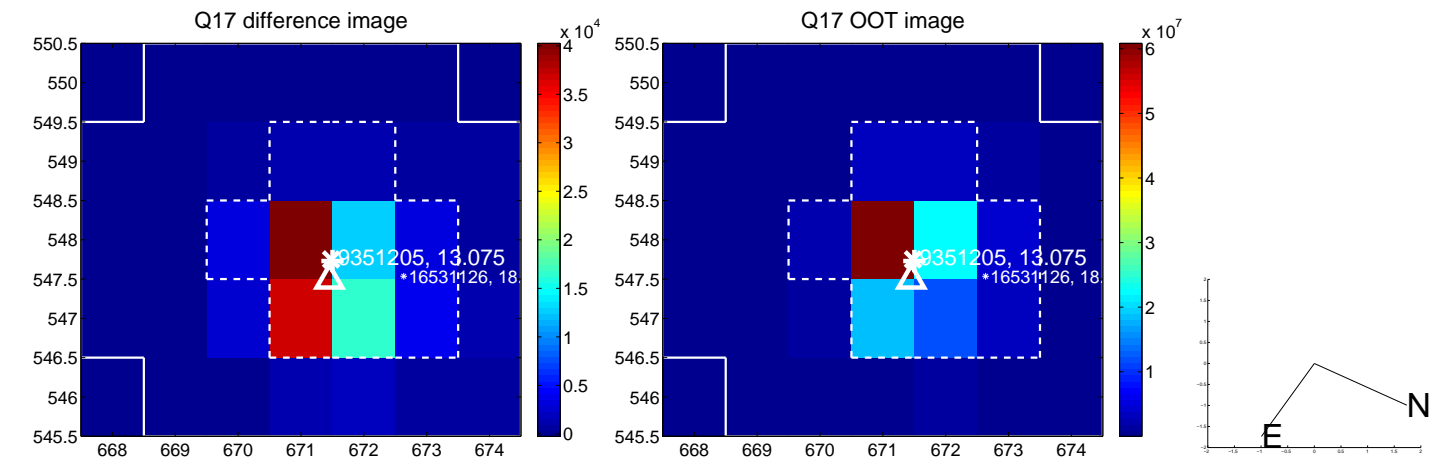
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

