

KIC 004177905

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})
004177905-01	OBS	No	0.582694	131.892958	168.7	1.369	9.3	10.1	2.48	7387	3.75	60061.62
004177905-02	OBS	No	0.582682	131.616136	142.0	1.100	8.4	6.9	2.48	7387	3.44	60063.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004177905-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004177905-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

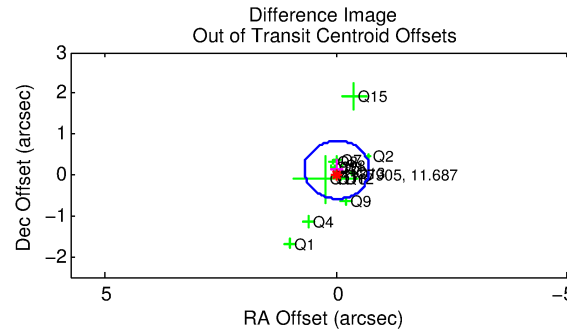
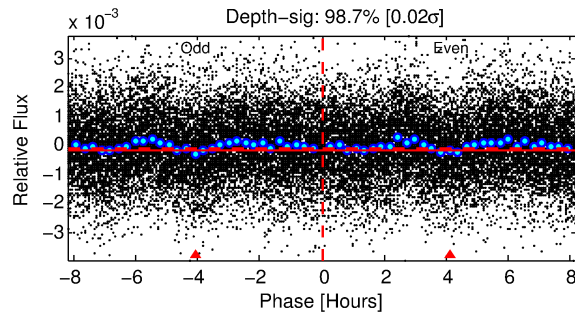
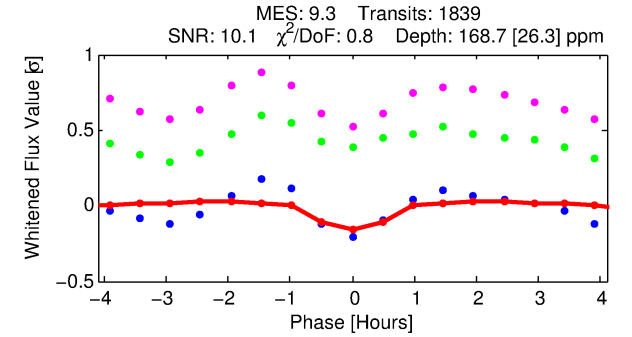
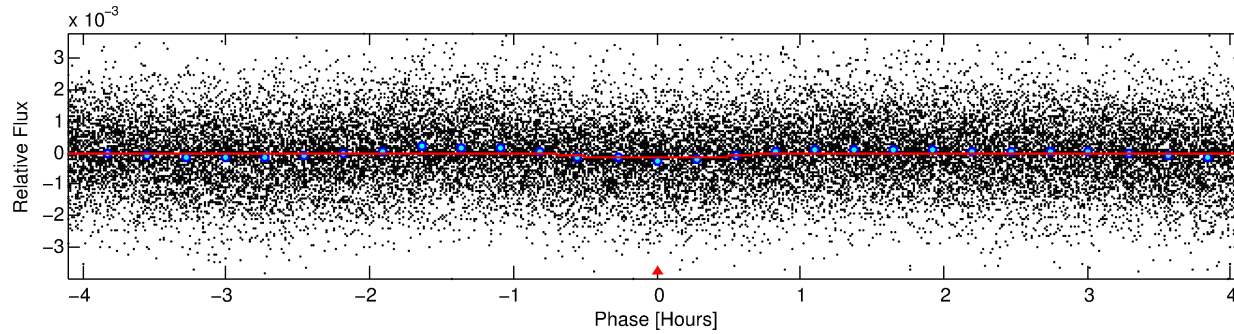
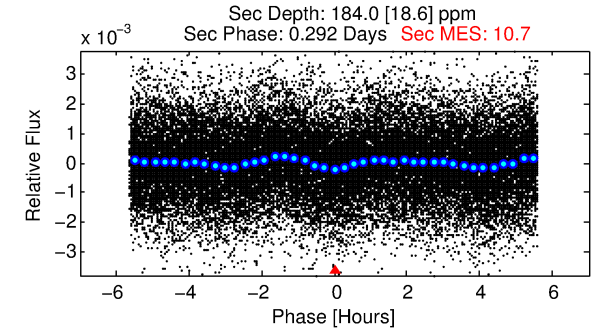
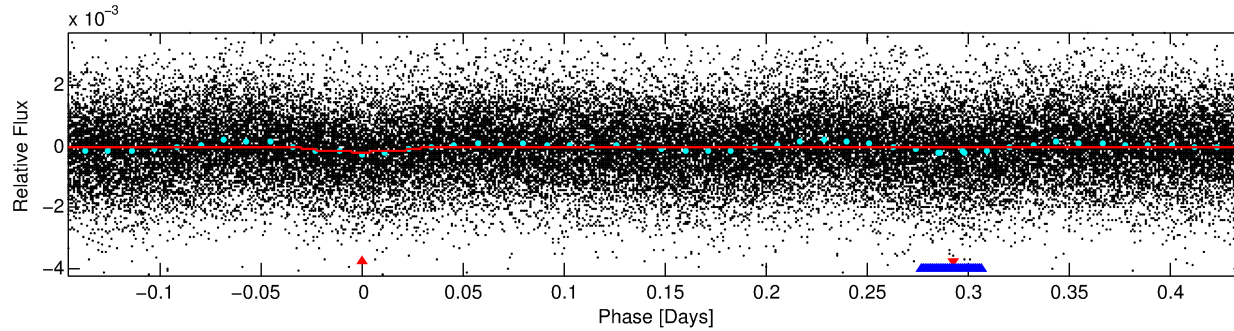
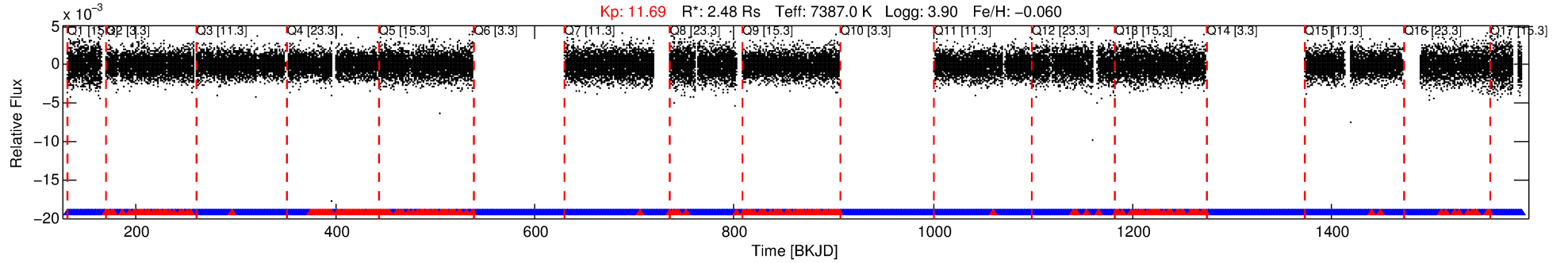
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004177905-01

No Significant Match Found

DV One-Page Summary

KIC: 4177905 Candidate: 1 of 2 Period: 0.583 d



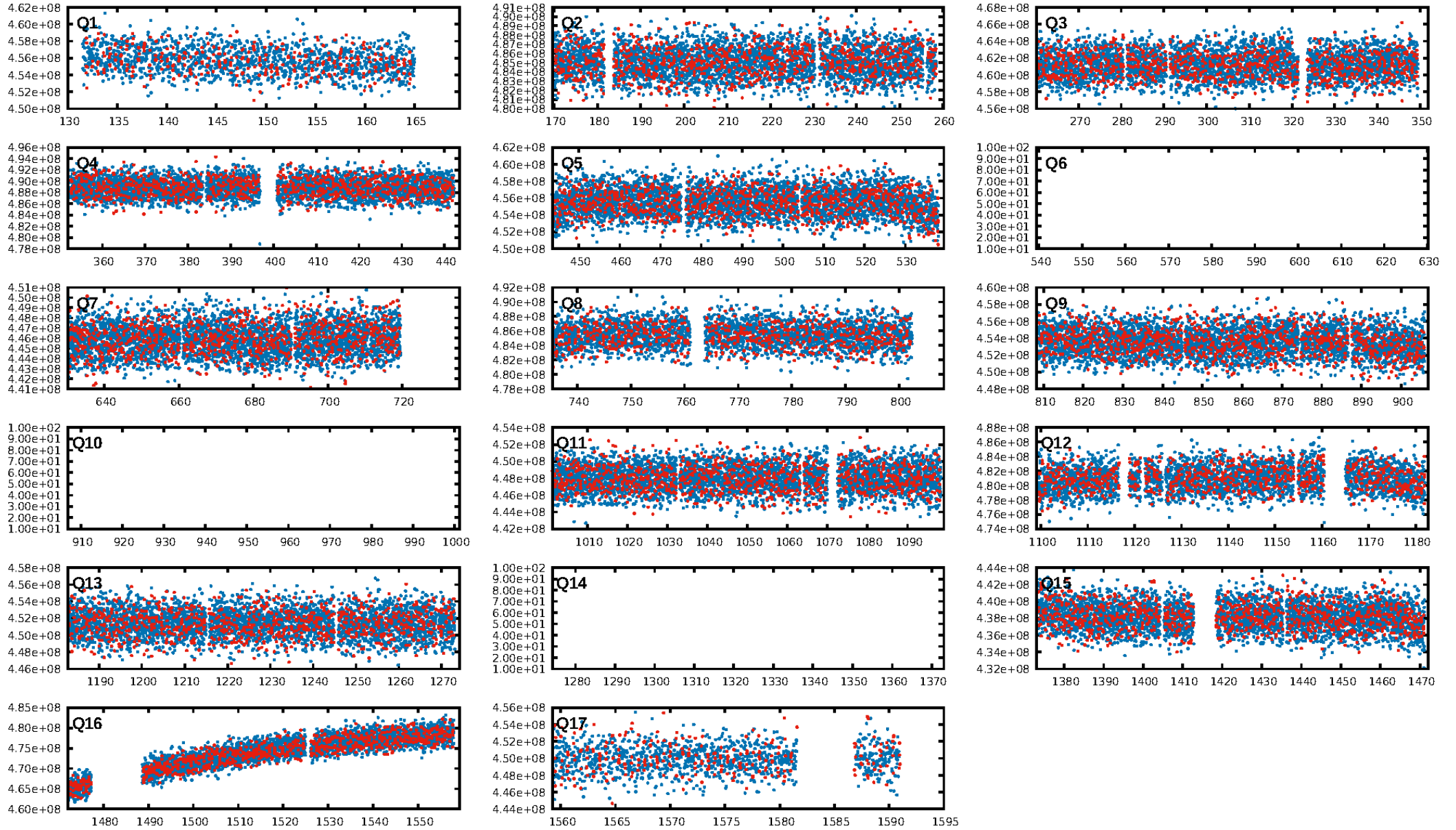
DV Fit Results:

Period = 0.58269 [0.00001] d
Epoch = 131.8930 [0.0021] BKJD
Rp/R* = 0.0138 [0.0076]
a/R* = 1.78 [4.26]
b = 0.90 [0.74]
Seff = 60061.63 [31437.60]
Teq = 3992 [522] K
Rp = 3.75 [2.46] Re
a = 0.0165 [0.0053] AU
Ag = 1.97 [2.38] [0.41σ]
Teffp = 7312 [2039] K [1.58σ]

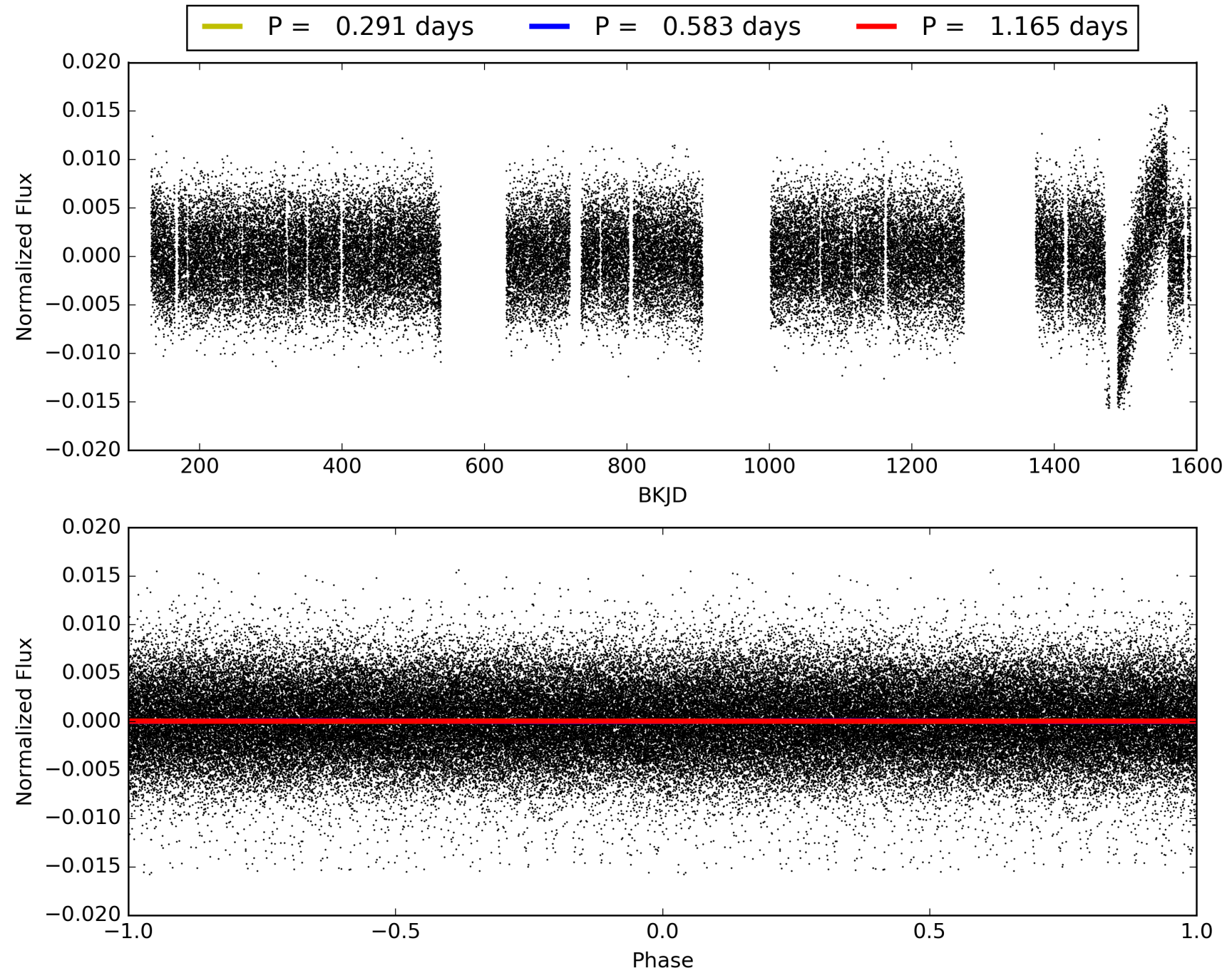
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.21e-15
RollingBand-fgt: 0.84 [1459/1736]
GhostDiagnostic-chr: 5.066
Centroid-sig: N/A
Centroid-so: 0.218 arcsec [2.49σ]
OotOffset-rm: 0.122 arcsec [0.52σ]
KicOffset-rm: 0.217 arcsec [0.91σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004177905-01, PDC Light Curves

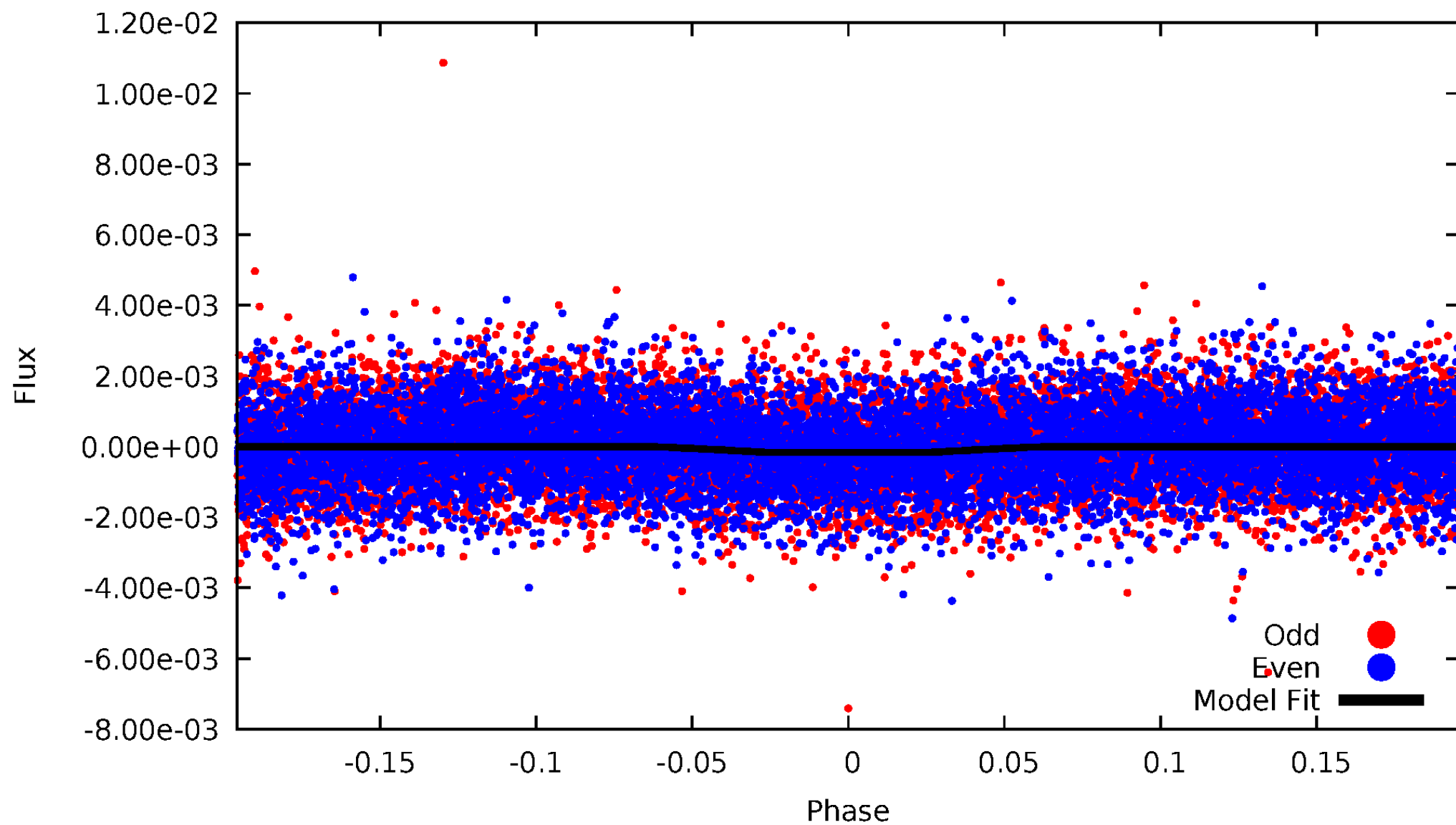


TCE 004177905-01



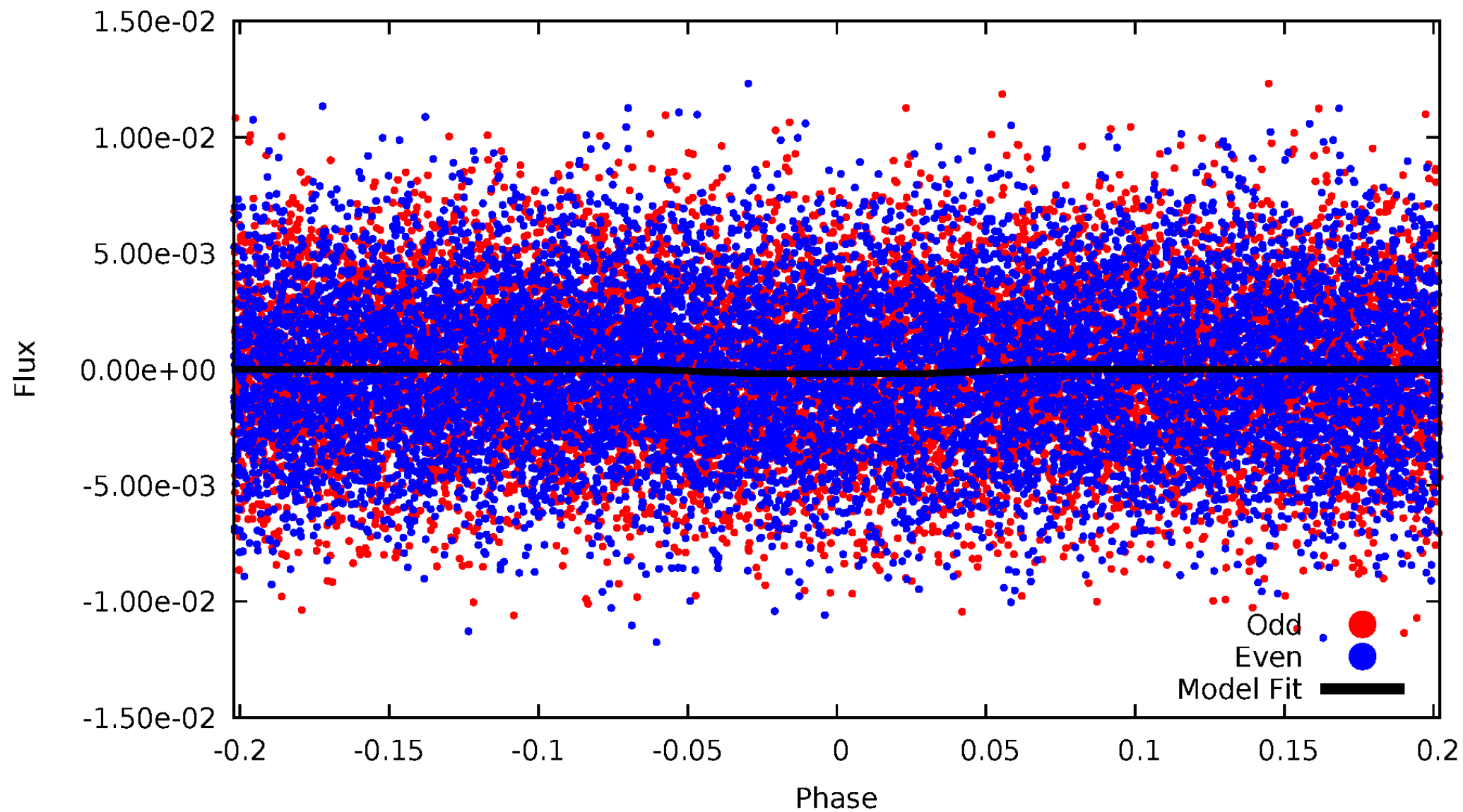
DV Odd/Even

TCE 004177905-01

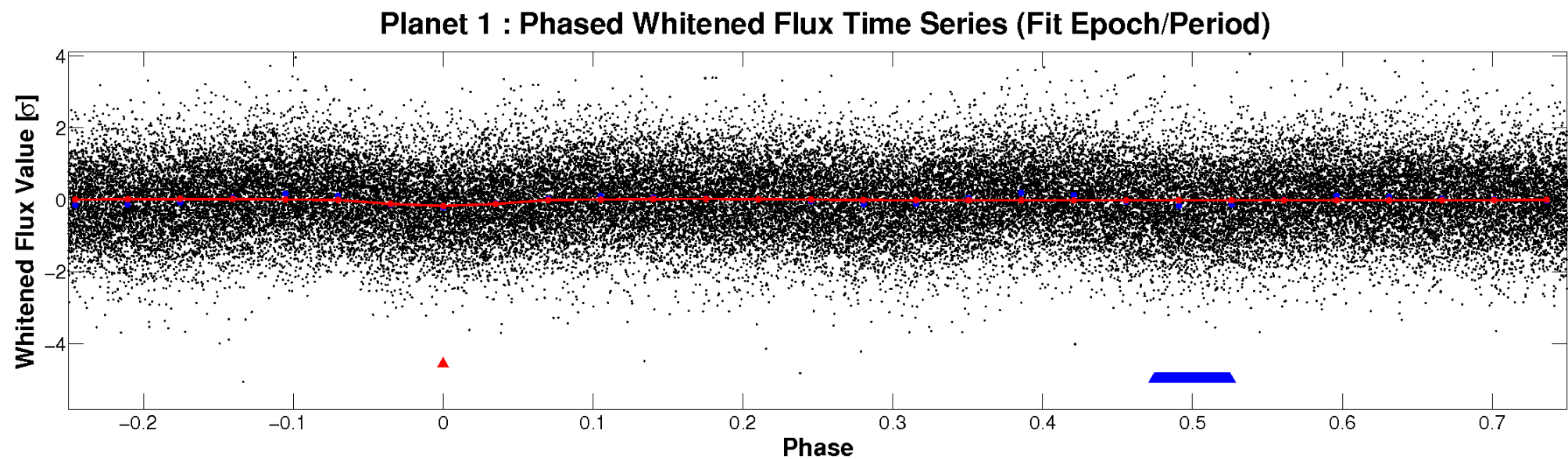
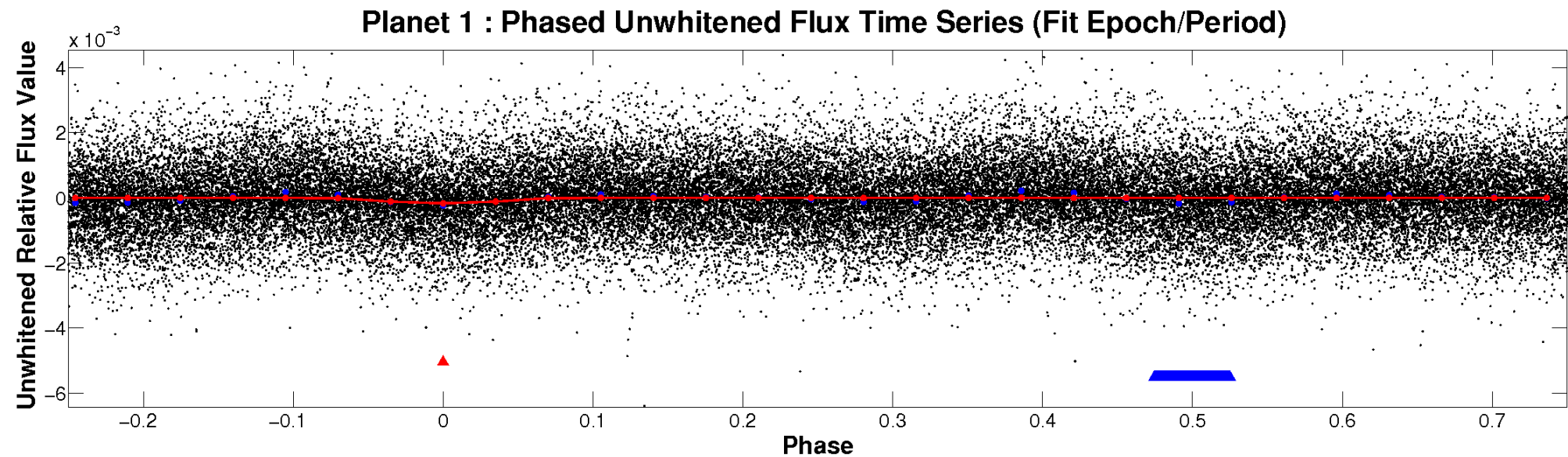


ALT Odd/Even

TCE 004177905-01

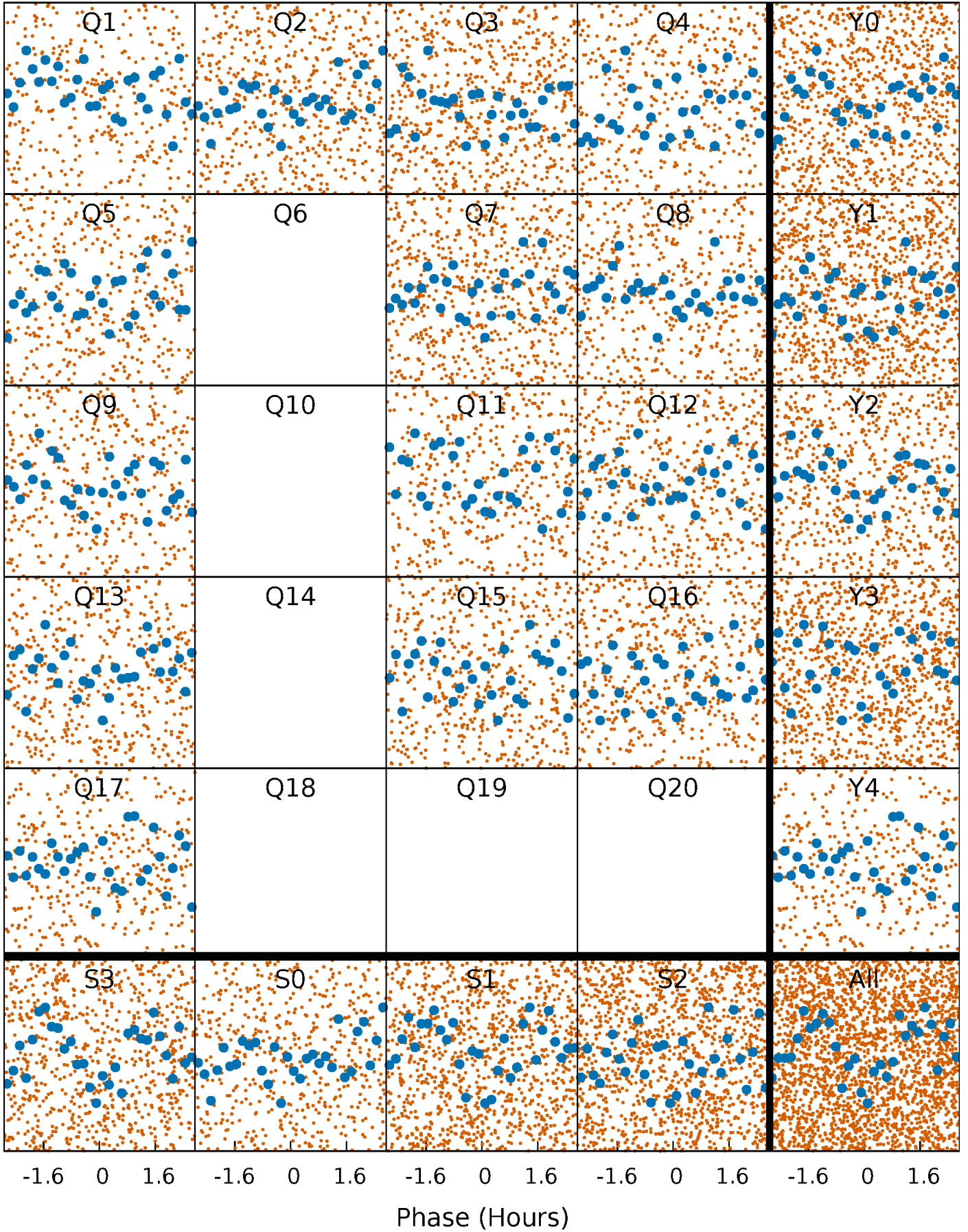


Non-Whitened Vs. Whitened Light Curve



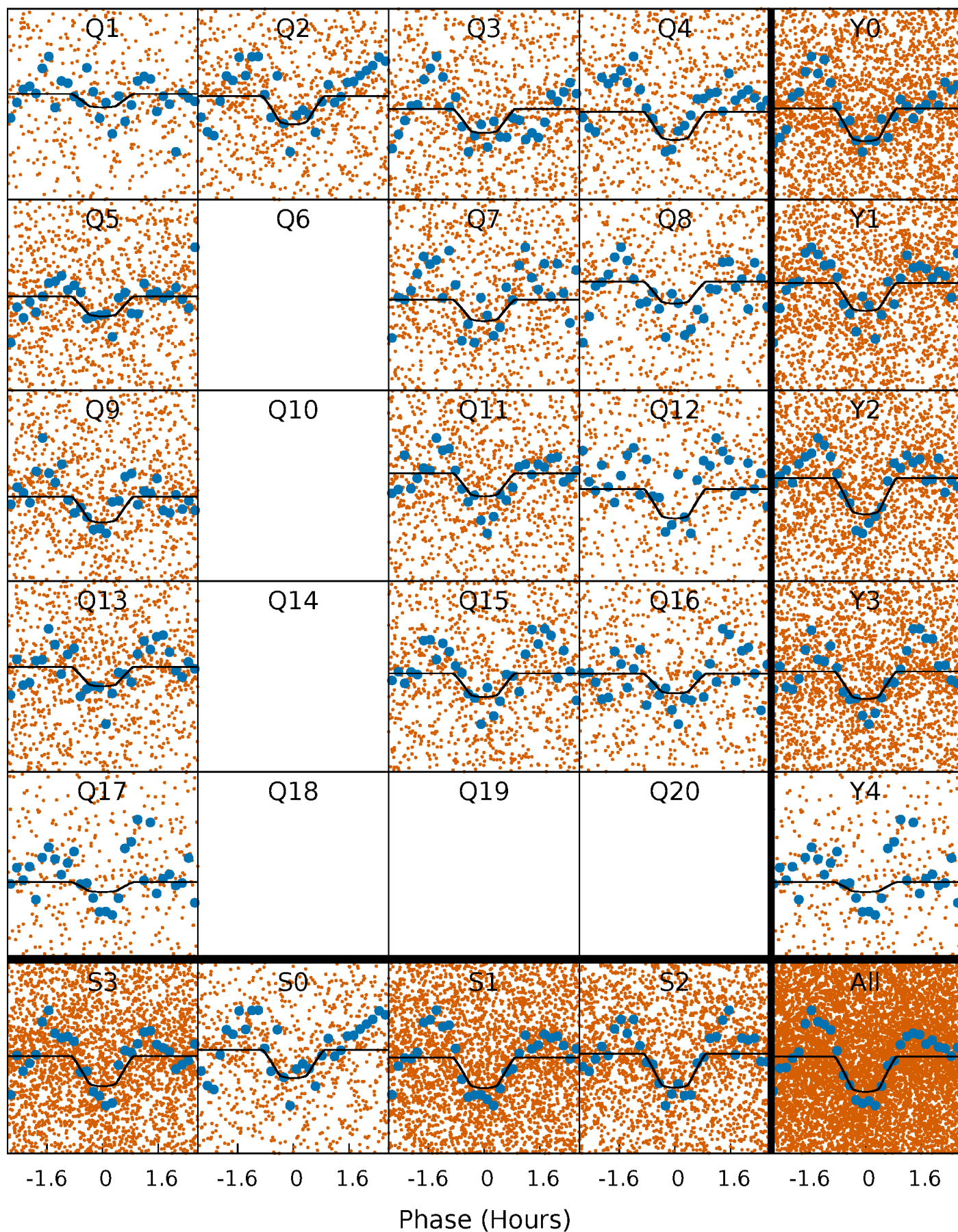
PDC Quarter-Phased Transit Curves

TCE 004177905-01 P= 0.582694 Days $T_0=131.892958$ (BKJD)



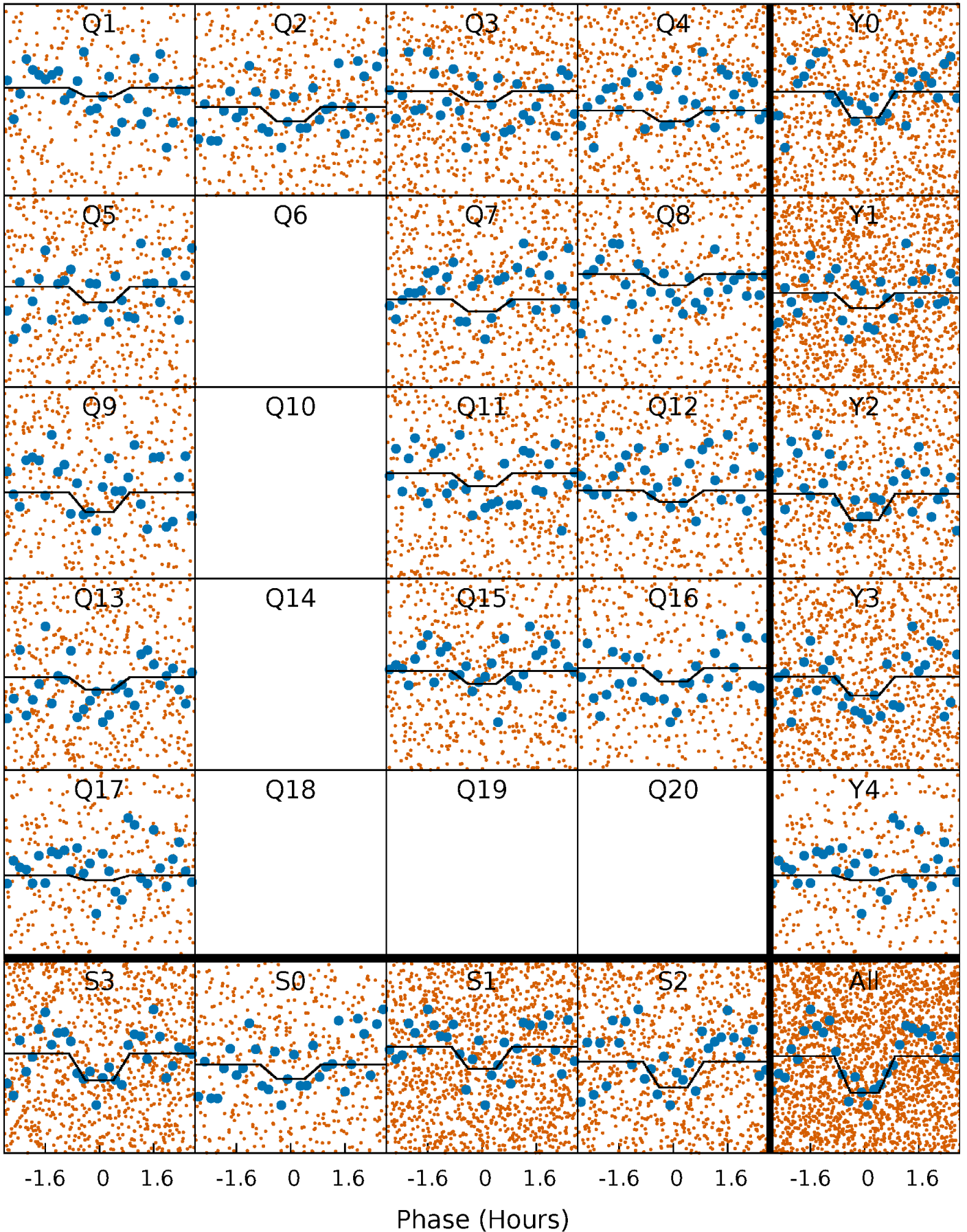
DV Quarter-Phased Transit Curves

TCE 004177905-01 P= 0.582694 Days $T_0=131.892958$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

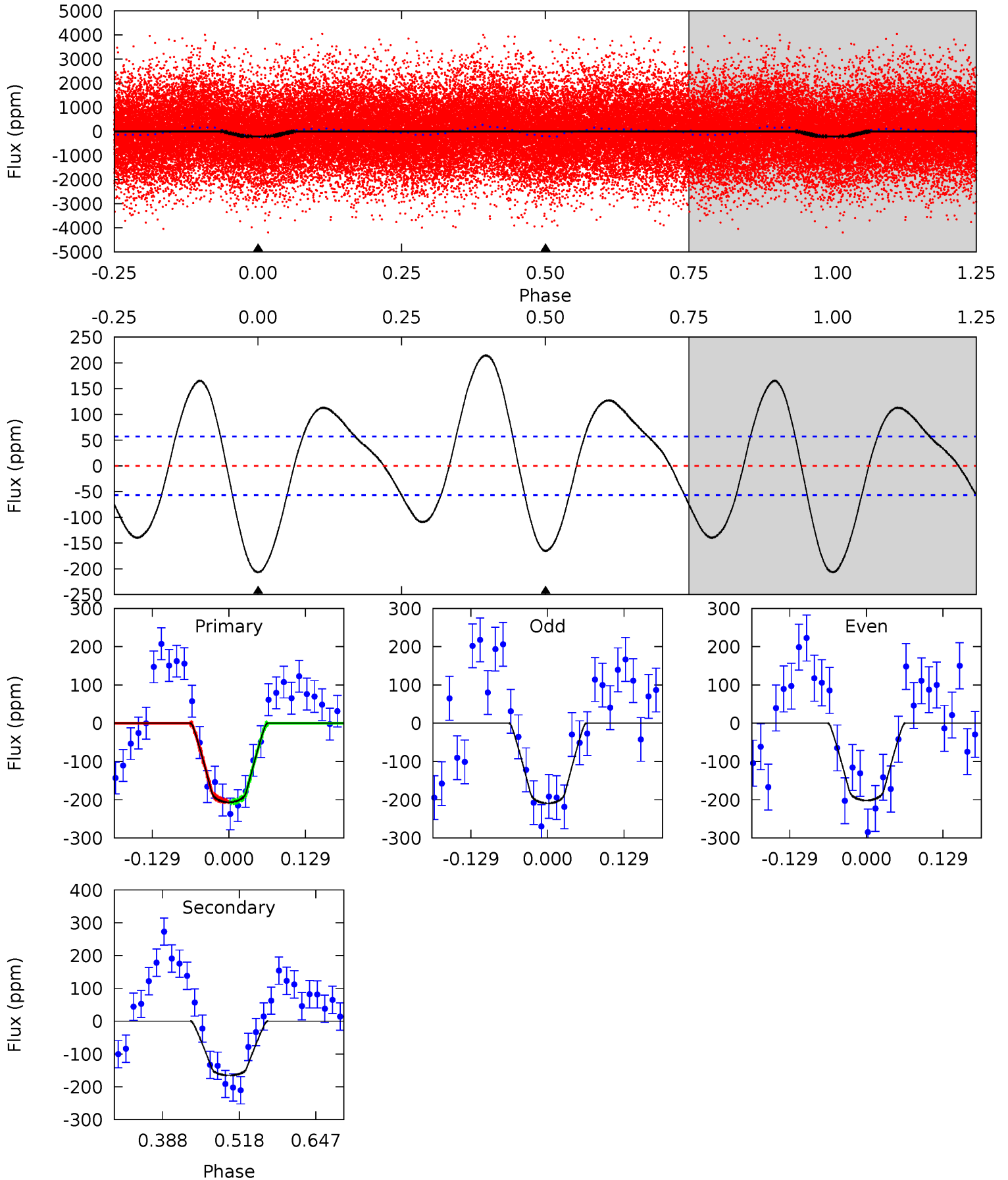
TCE 004177905-01 P= 0.582694 Days $T_0=131.893419$ (BKJD)



DV Model-Shift Uniqueness Test

004177905-01, P = 0.582694 Days, E = 131.310264 Days

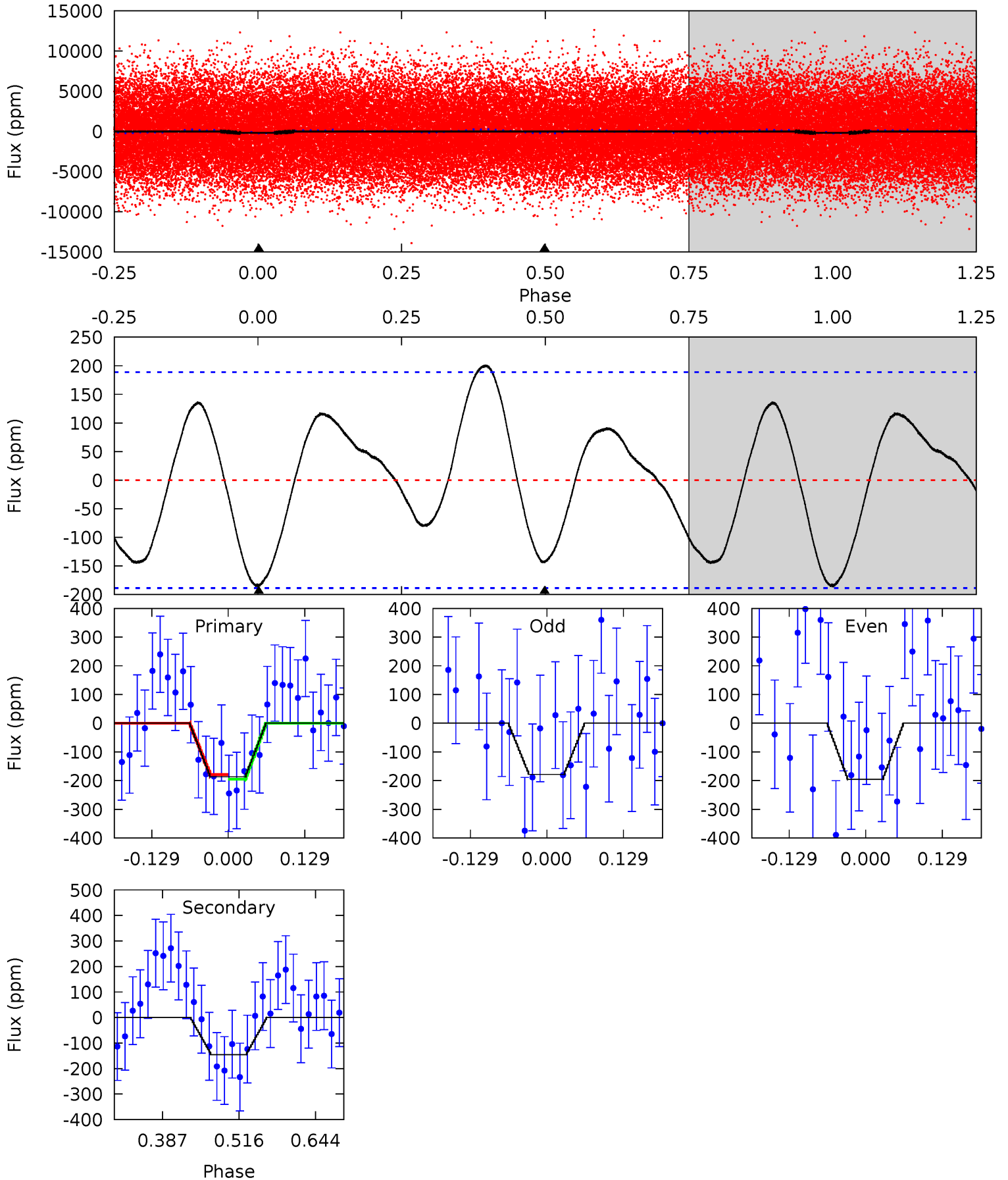
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.3	13.0	0	0	4.51	1.52	6.27	16.3	16.3	13.0	13.0	0.29	1.02	0.51	0.11



Alt Model-Shift Uniqueness Test

004177905-01, P = 0.582694 Days, E = 131.310725 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.47	3.47	0	0	4.51	1.52	1.76	4.47	4.47	3.47	3.47	0.20	0.90	0.52	0.19



Stellar Parameters For KIC 004177905

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7387^{+203}_{-330}	$3.898^{+0.279}_{-0.129}$	$-0.060^{+0.200}_{-0.350}$	$2.481^{+0.485}_{-0.901}$	$1.775^{+0.194}_{-0.389}$	$0.164^{+0.329}_{-0.060}$
	+3%/-4%	+7%/-3%	+333%/-583%	+20%/-36%	+11%/-22%	+201%/-37%
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 004177905-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-165 ± 13	$3.71^{+2.02}_{-1.93}$	5474^{+403}_{-464}	6568^{+4392}_{-1644}	$1.786^{+5.870}_{-1.032}$
Alt.	-145 ± 42	$3.45^{+2.28}_{-1.78}$	5491^{+363}_{-516}	6430^{+4008}_{-1839}	$1.755^{+5.085}_{-1.137}$

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 $A_{obs} \gg 1.0$

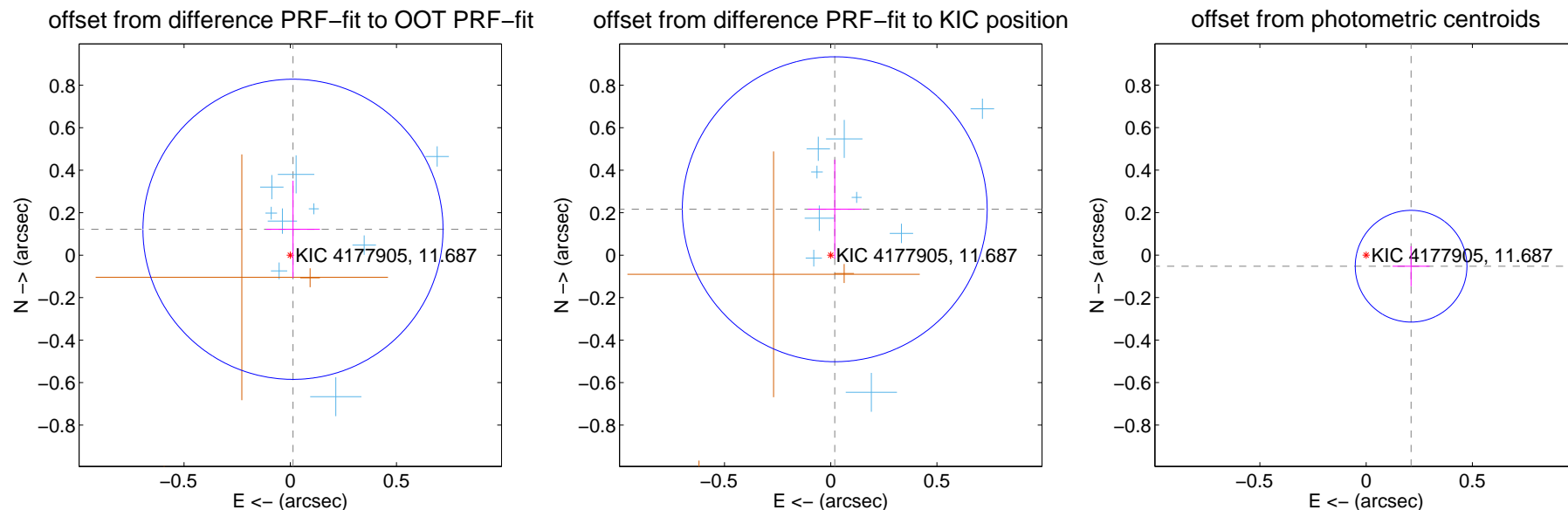
DV Centroid Data

Supplemental centroid analysis for 004177905-01. **Kepler magnitude: 11.69.** Transit SNR 10.10

There are 10 quarters with good PRF difference image offsets

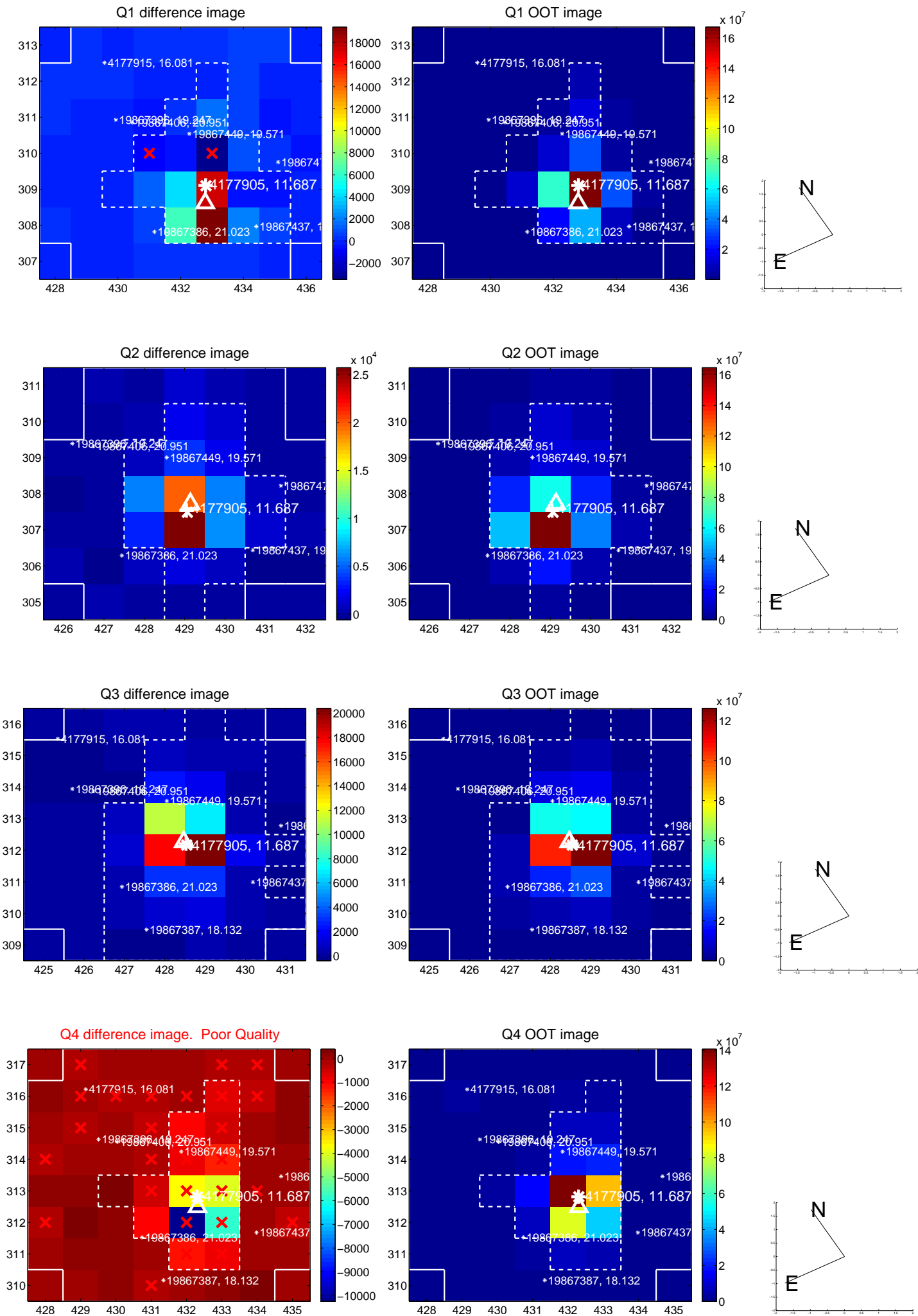
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.122 ± 0.235	0.52	-0.013 ± 0.127	0.122 ± 0.229
PRF-fit source offset from KIC position	0.217 ± 0.239	0.91	-0.019 ± 0.127	0.216 ± 0.233
photometric centroid source offset	0.22 ± 0.09	2.49	-0.21 ± 0.09	-0.05 ± 0.09

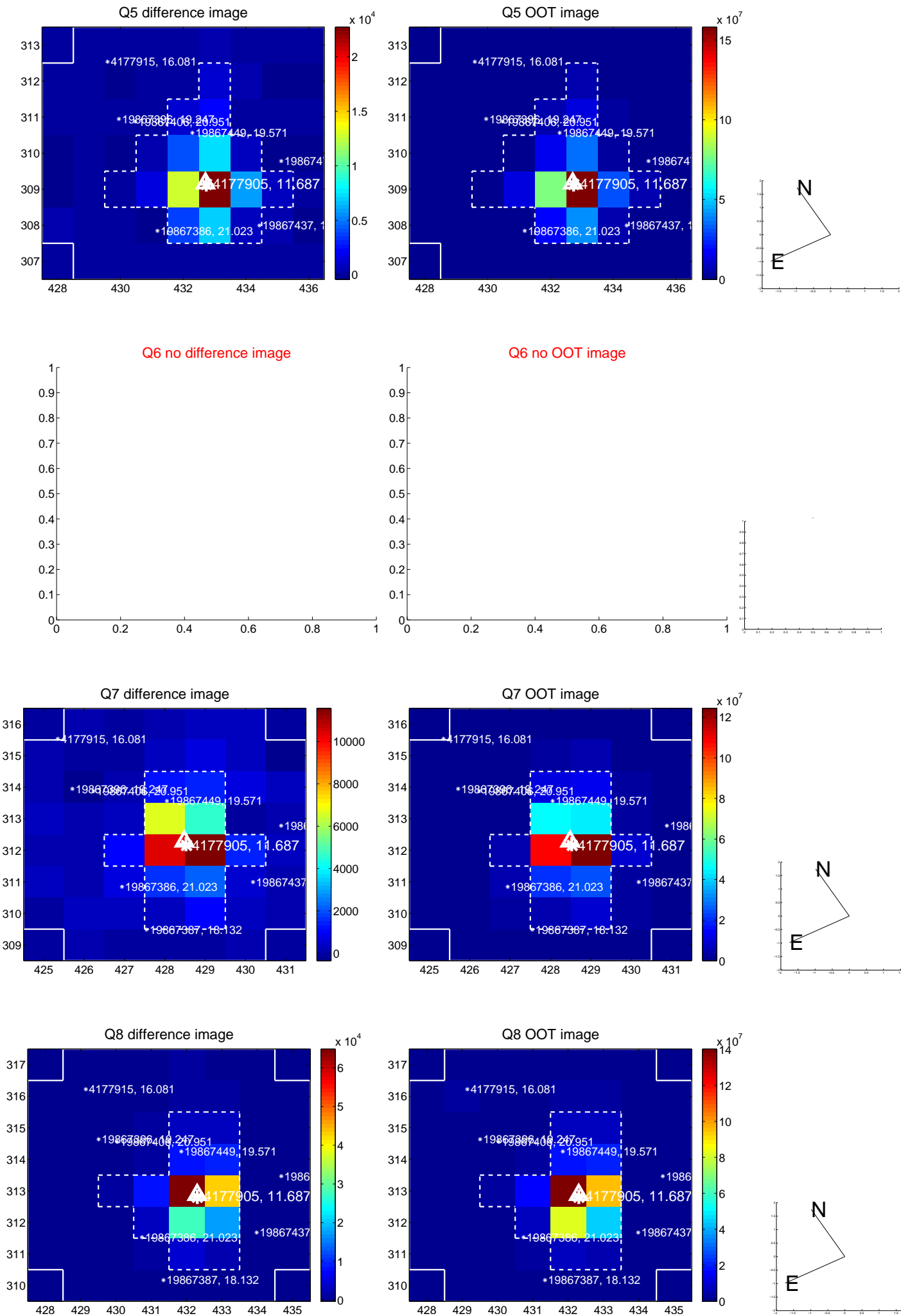


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

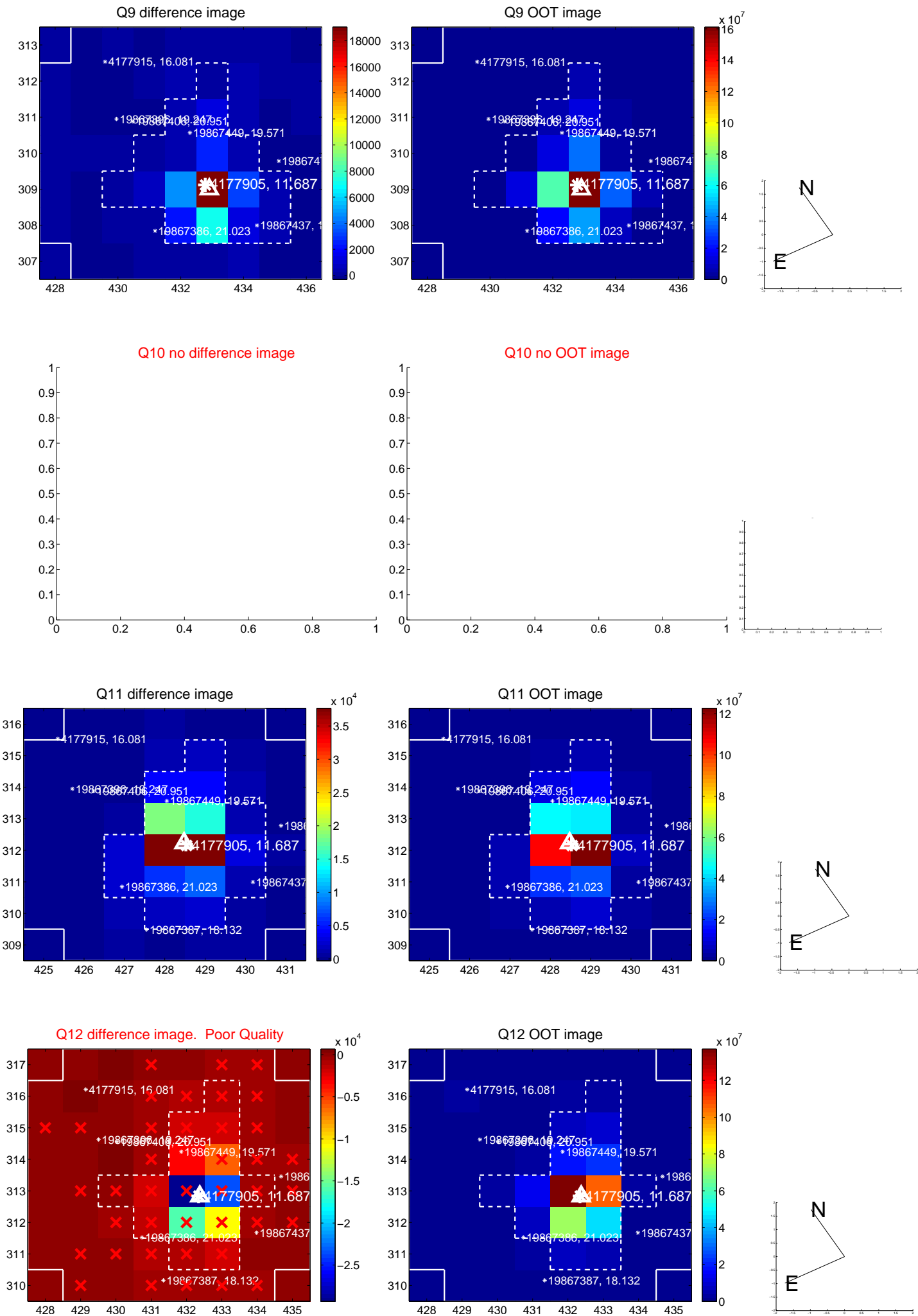
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



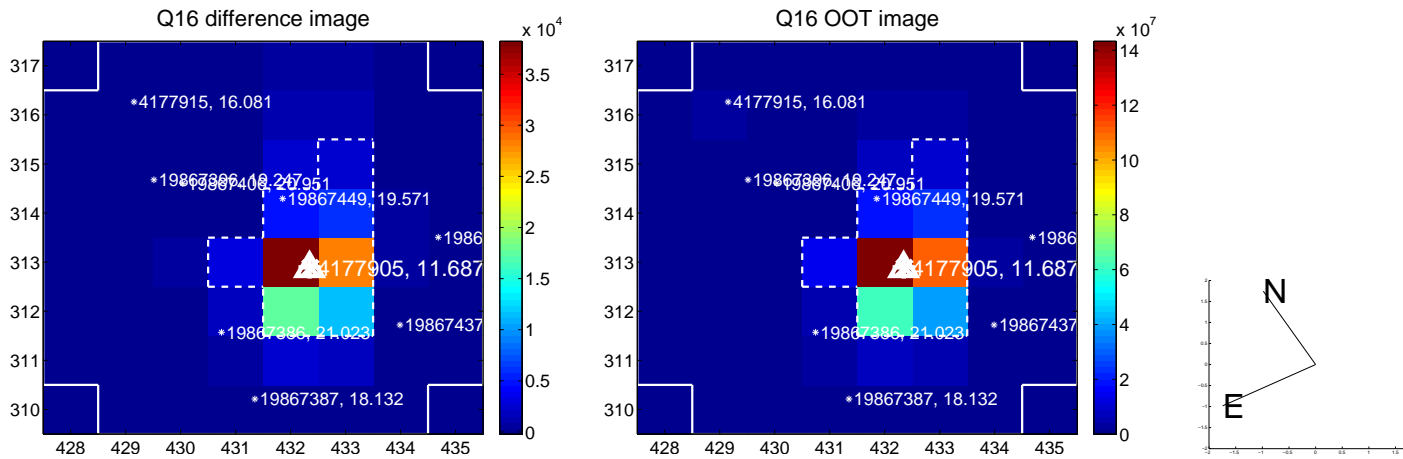
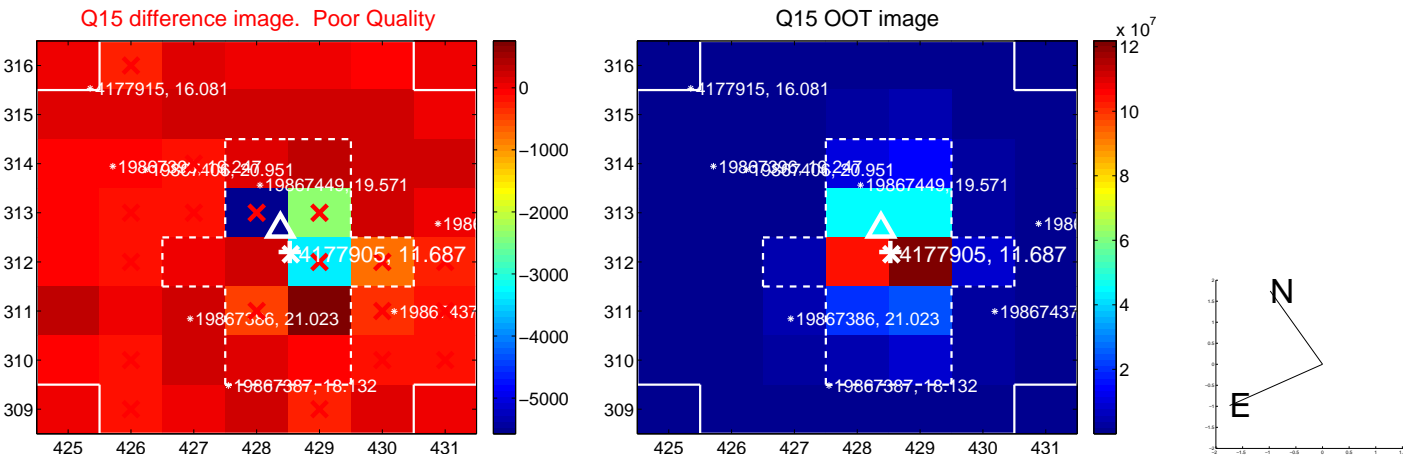
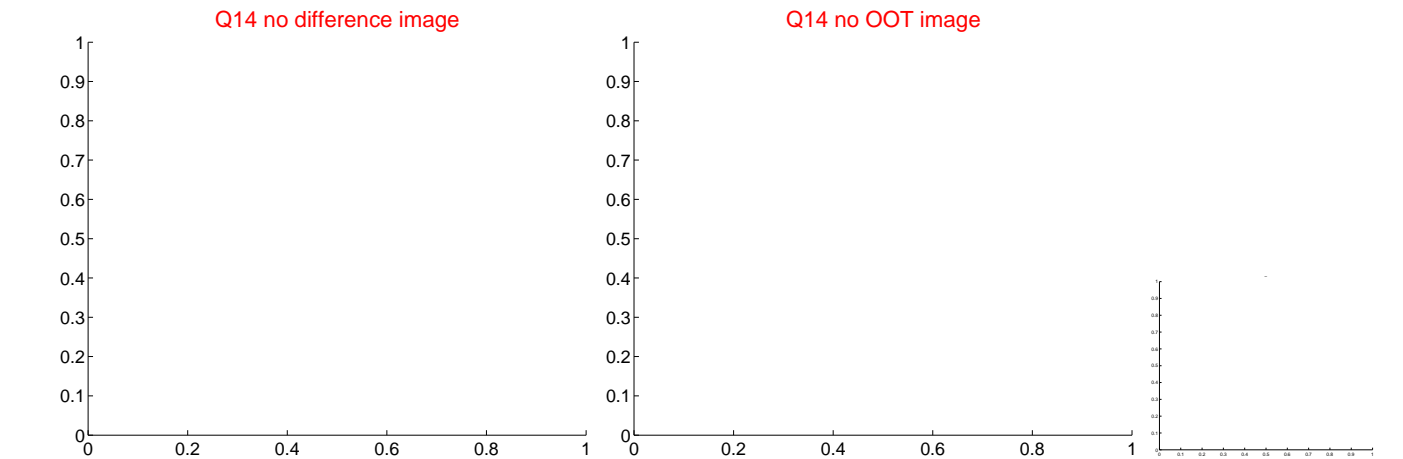
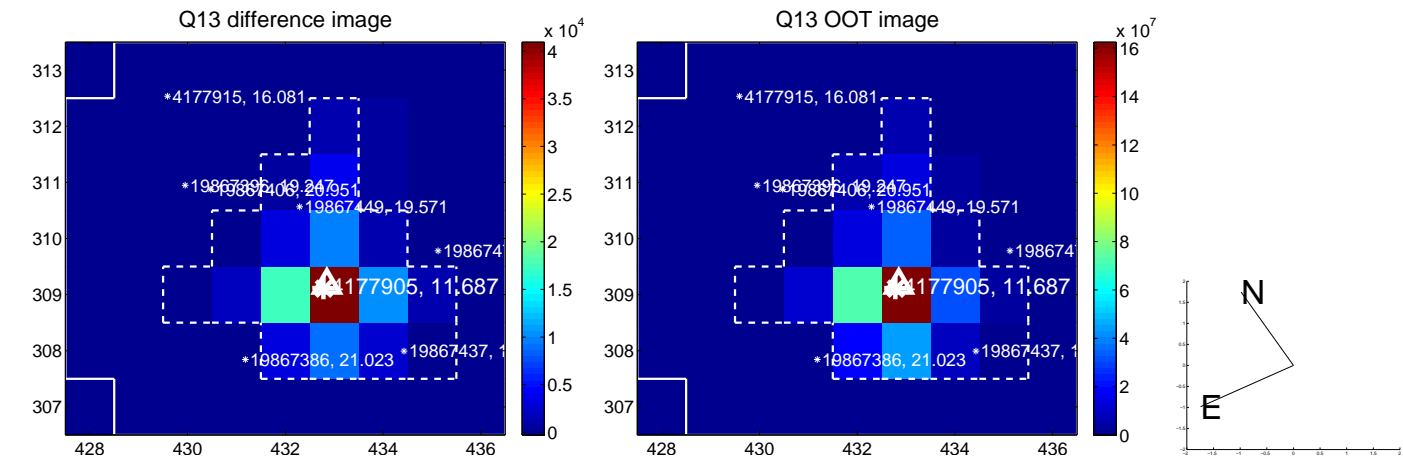
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



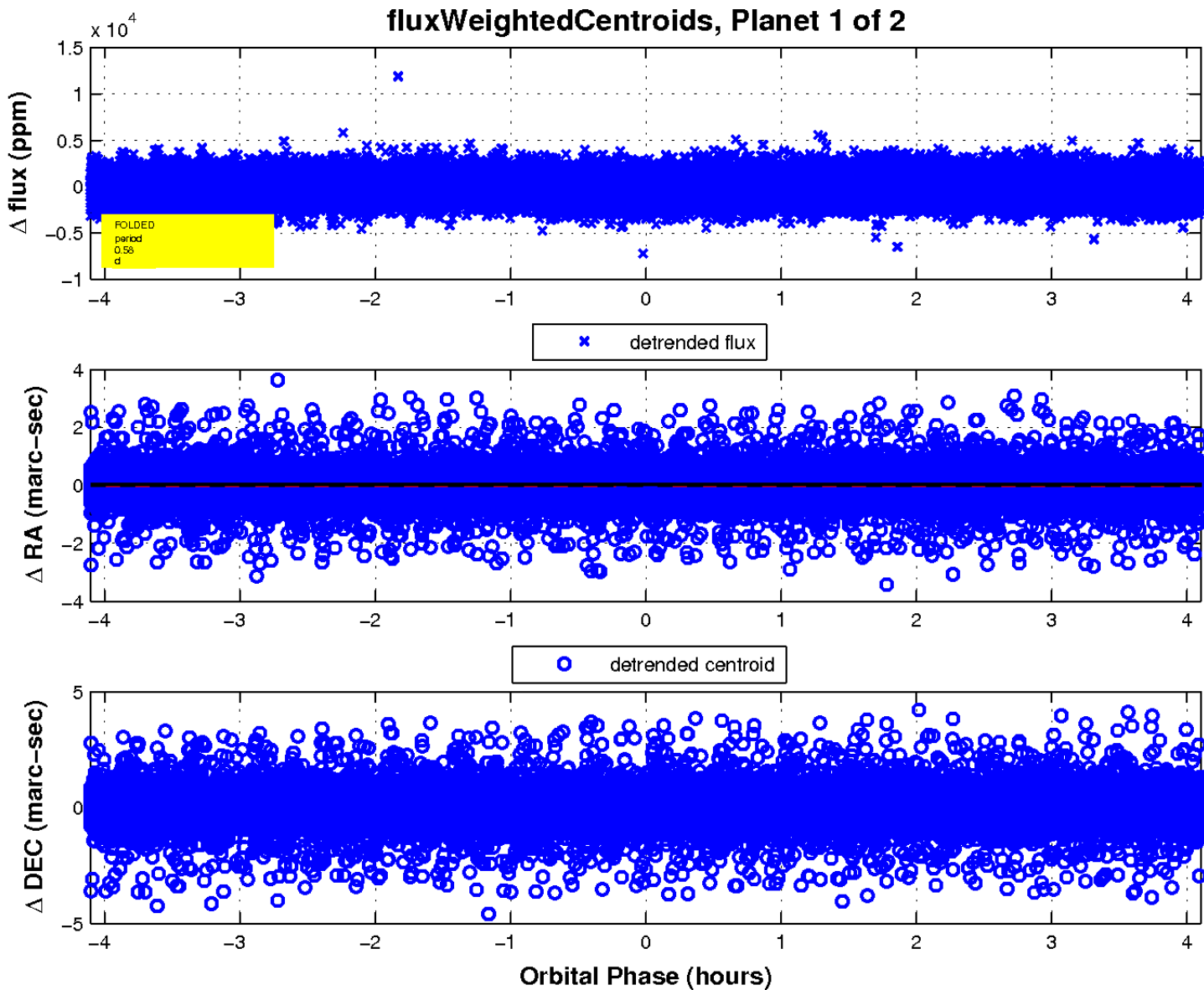
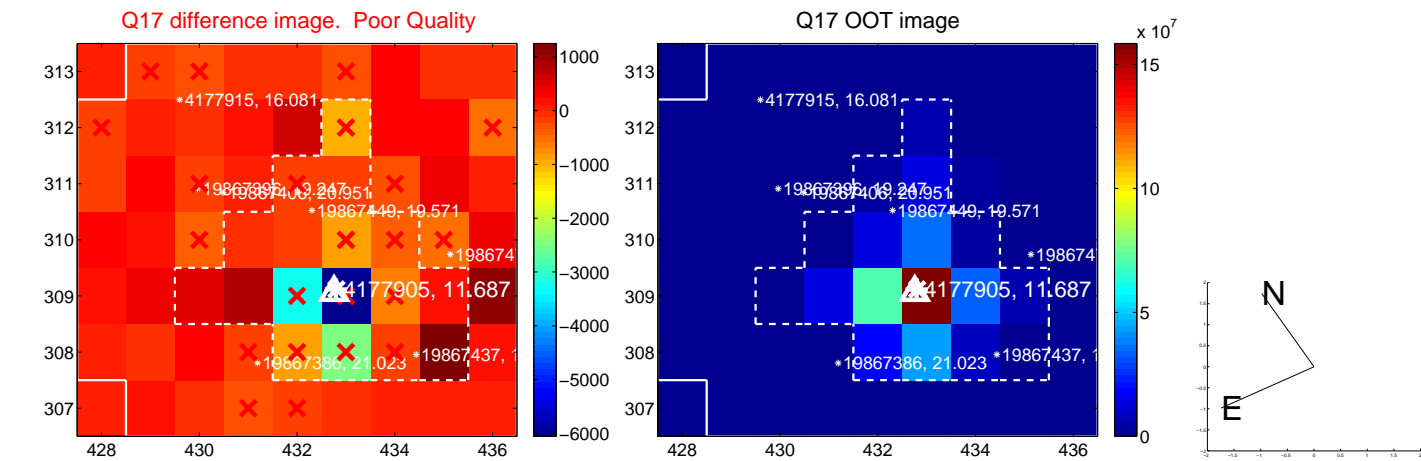
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

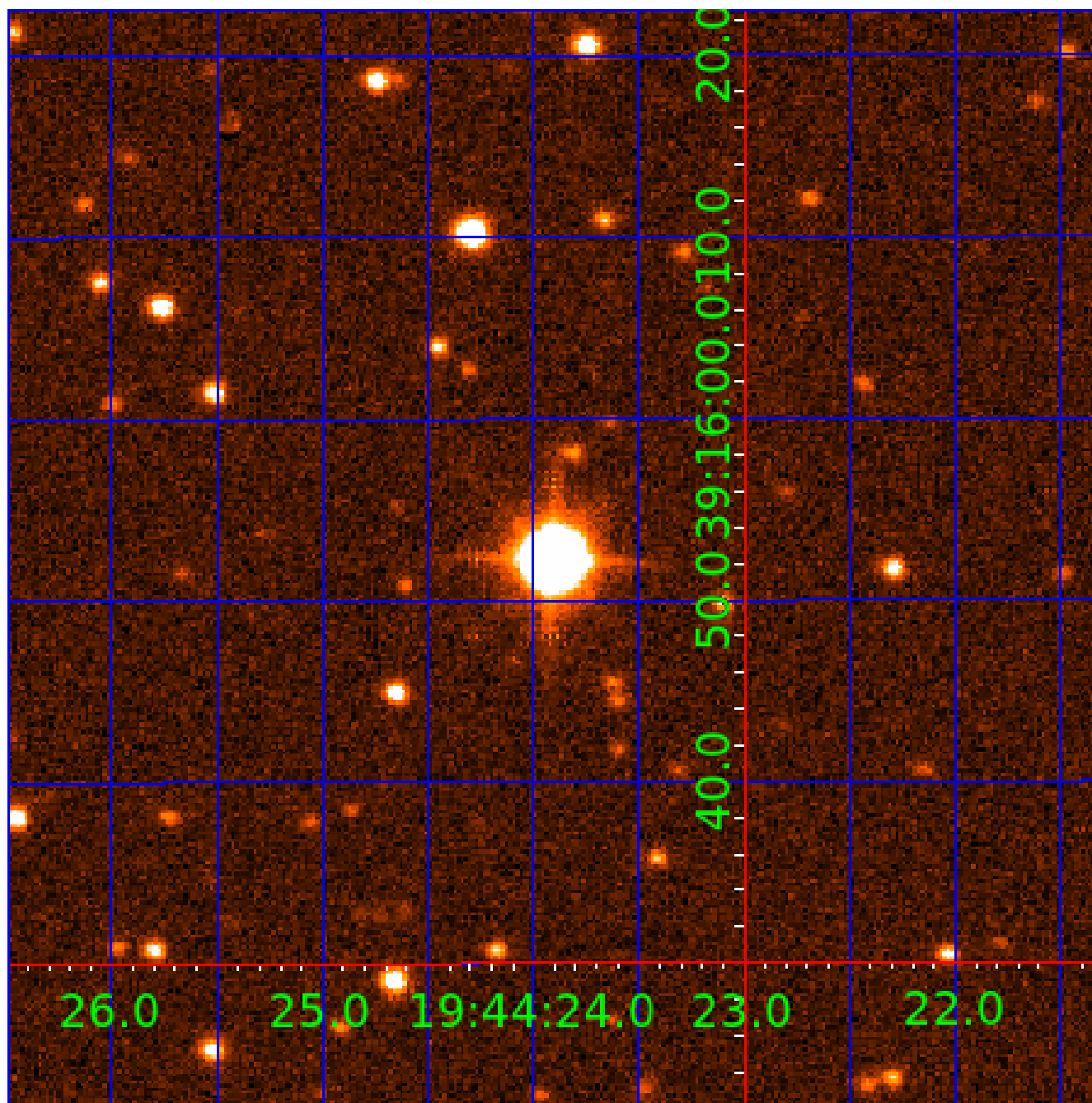


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004177905

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})
004177905-01	OBS	No	0.582694	131.892958	168.7	1.369	9.3	10.1	2.48	7387	3.75	60061.62
004177905-02	OBS	No	0.582682	131.616136	142.0	1.100	8.4	6.9	2.48	7387	3.44	60063.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004177905-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004177905-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

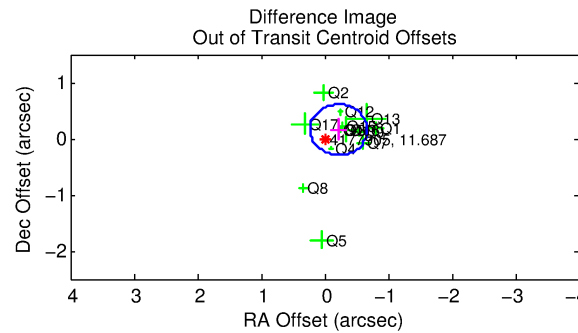
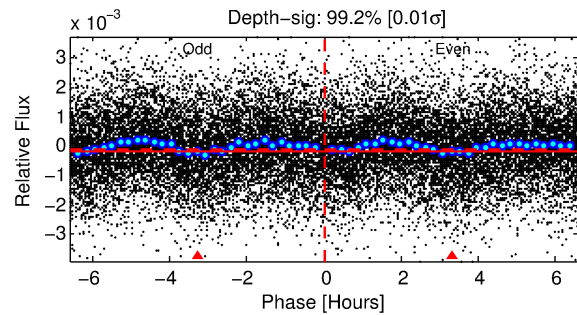
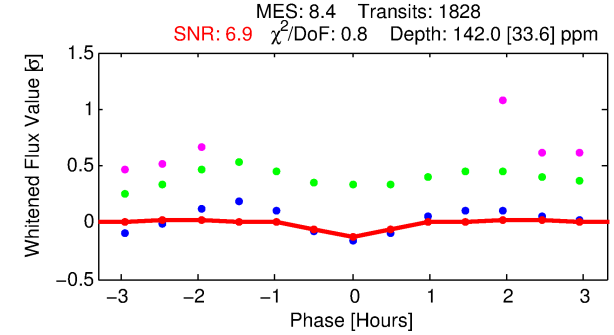
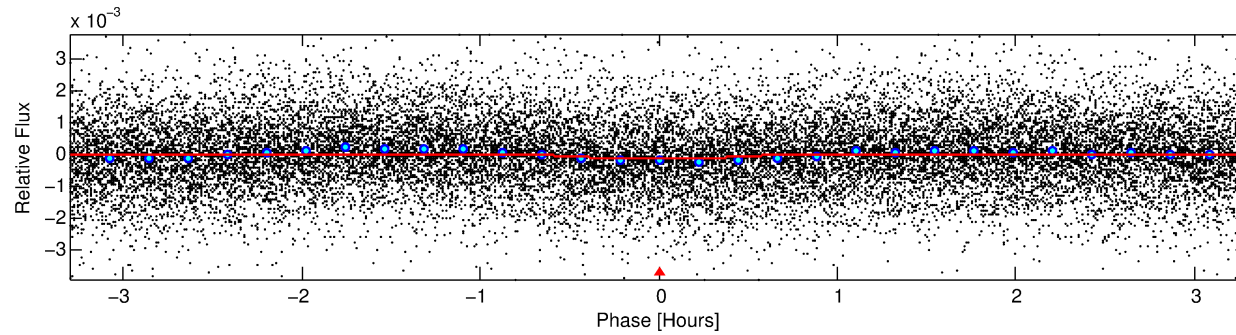
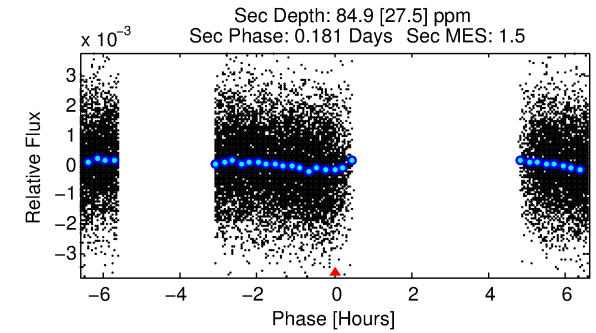
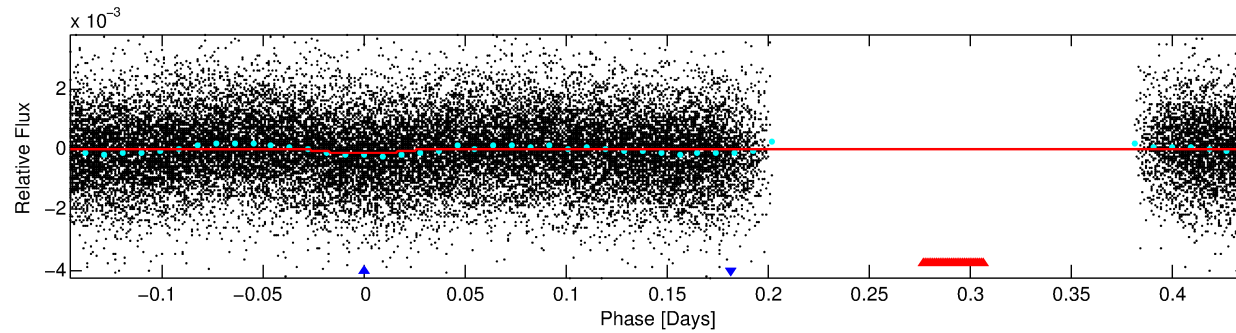
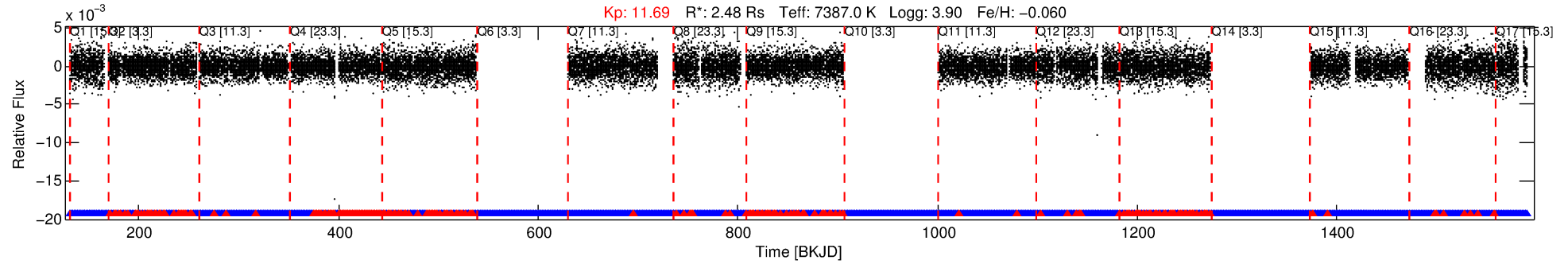
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004177905-02

No Significant Match Found

DV One-Page Summary

KIC: 4177905 Candidate: 2 of 2 Period: 0.583 d



DV Fit Results:

Period = 0.58268 [0.00002] d
Epoch = 131.6161 [0.0026] BKJD
Rp/R* = 0.0127 [0.0115]
a/R* = 2.11 [9.43]
b = 0.90 [1.25]
Seff = 60063.23 [31438.44]
Teq = 3992 [522] K
Rp = 3.44 [3.34] Re
a = 0.0165 [0.0053] AU
Ag = 1.08 [2.05] [0.04σ]
Teffp = 6291 [2894] K [0.78σ]

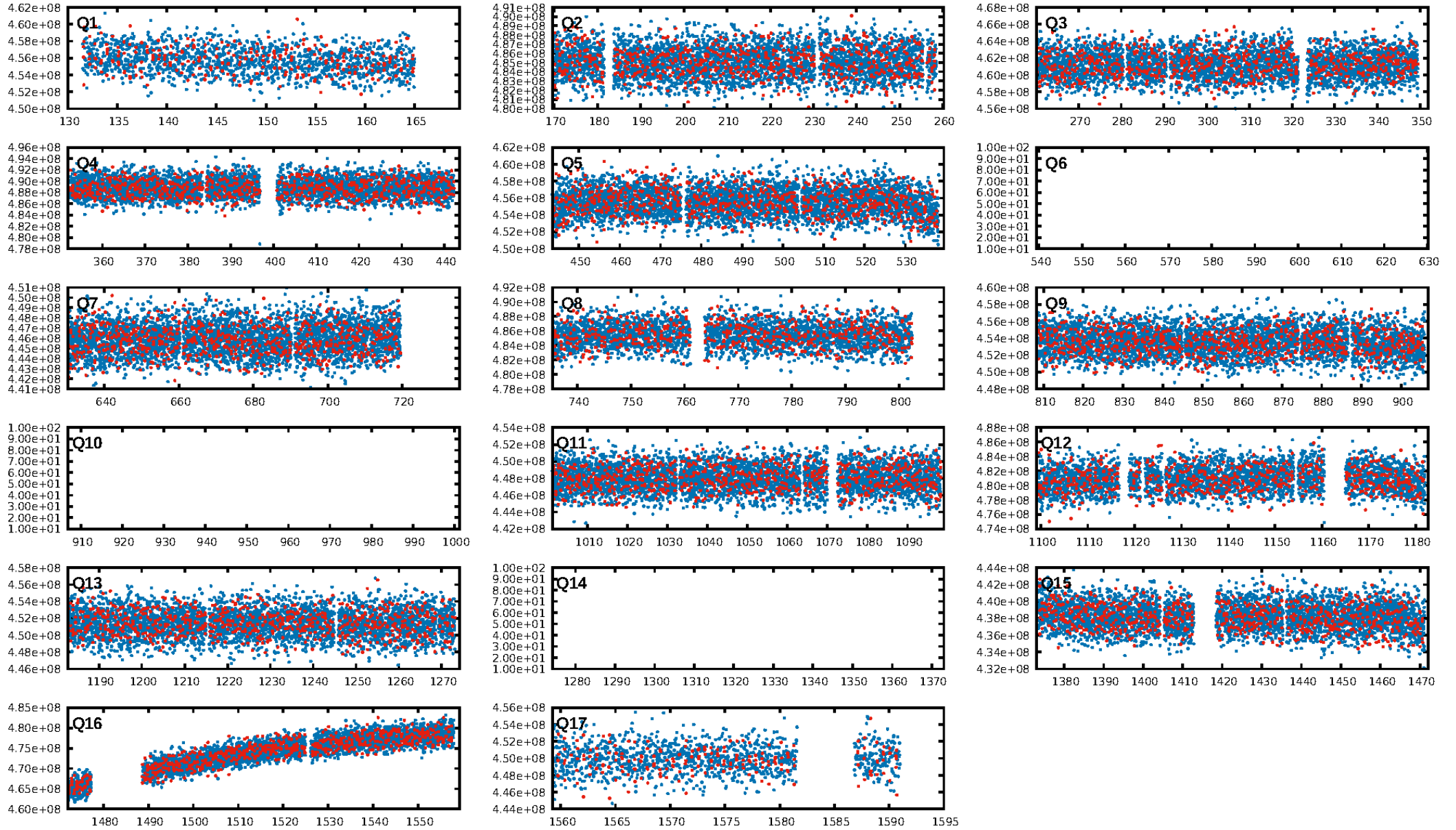
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.35e-12
RollingBand-fgt: 0.83 [1430/1725]
GhostDiagnostic-chr: 0.9404
Centroid-sig: N/A
Centroid-so: 0.207 arcsec [1.70σ]
OotOffset-rm: 0.269 arcsec [1.79σ]
KicOffset-rm: 0.434 arcsec [2.41σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.57 [8/14]
DiffImageOverlap-fno: 1.00 [14/14]

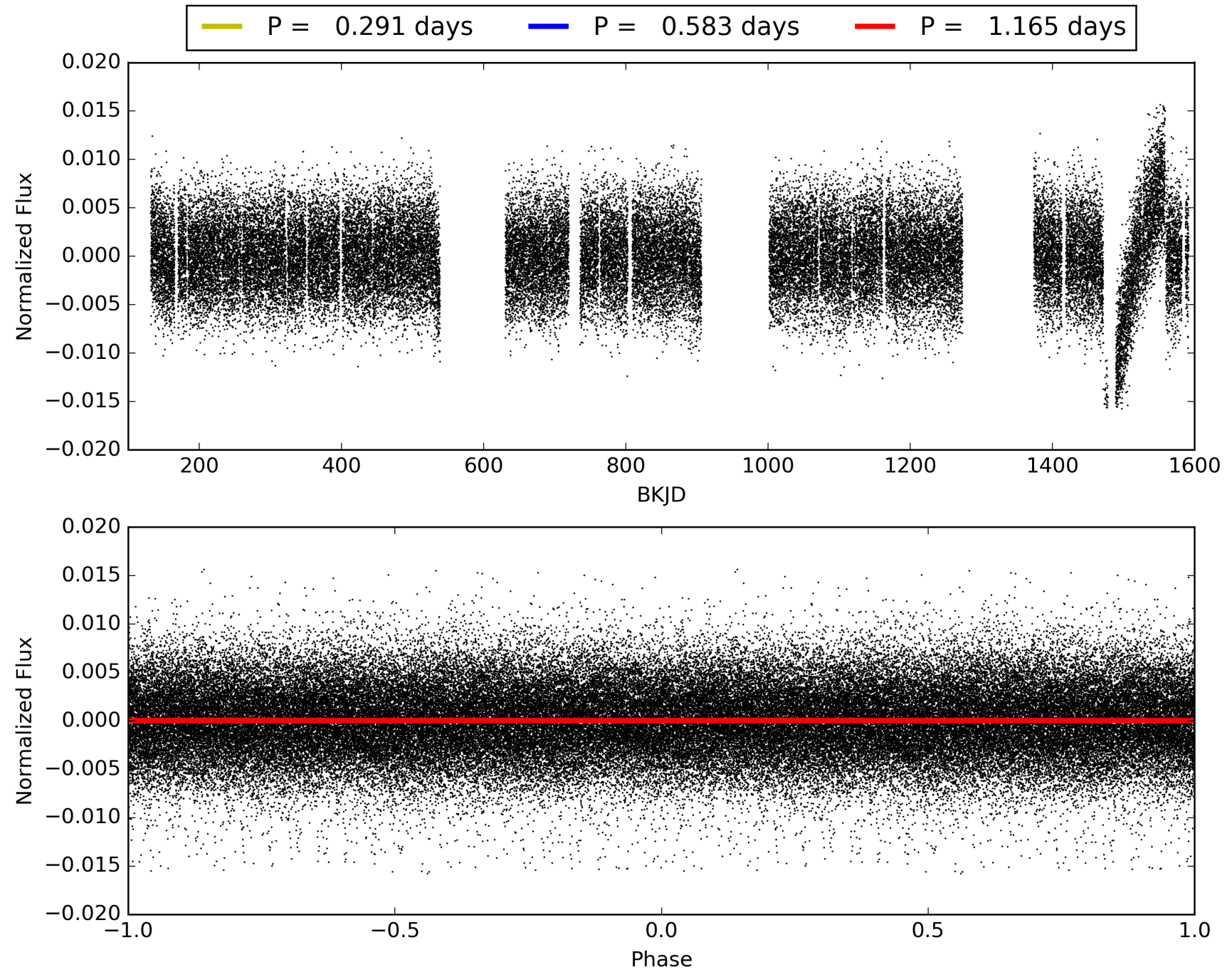
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:08:22 Z

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

TCE 004177905-02, PDC Light Curves

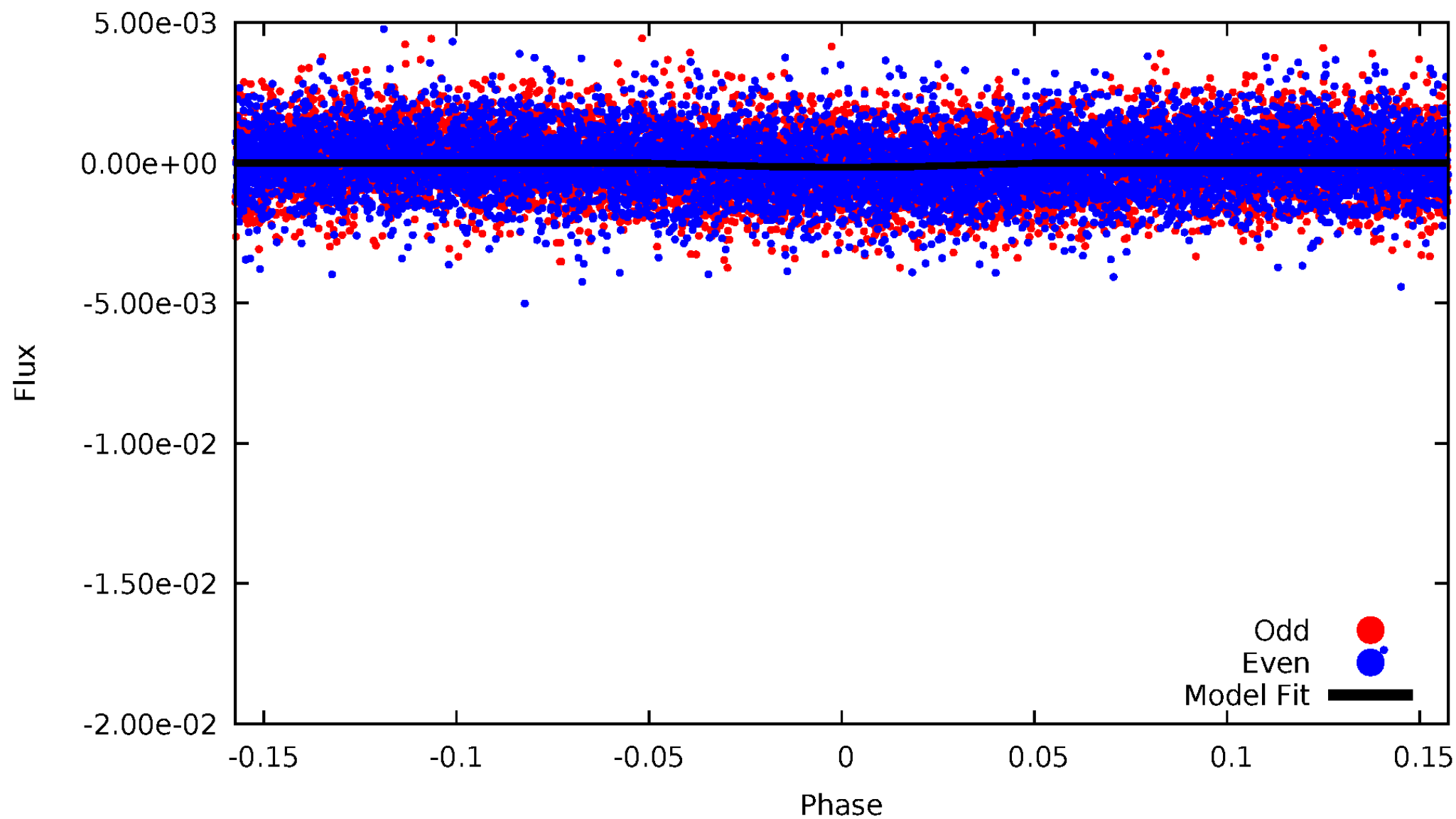


TCE 004177905-02



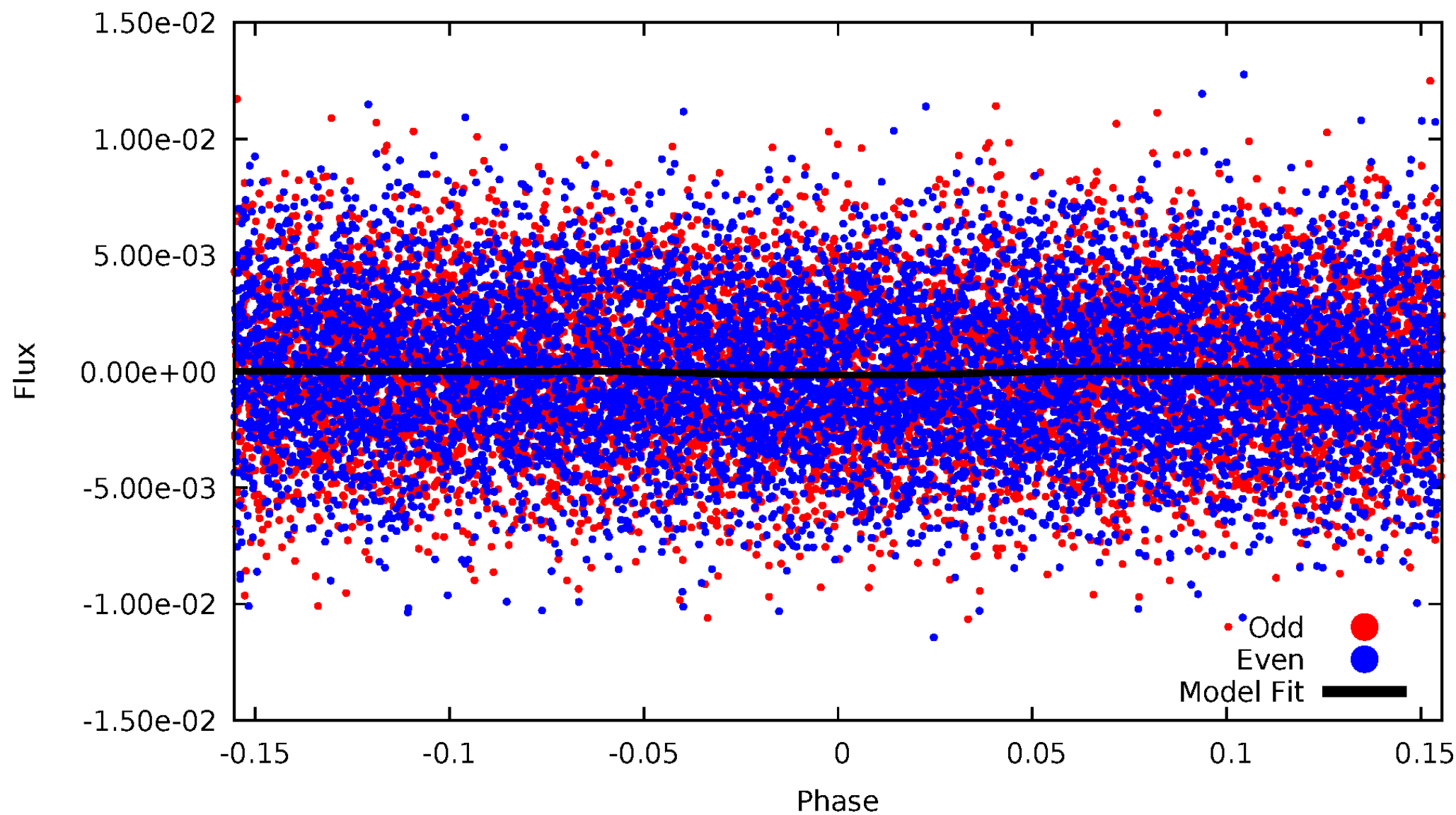
DV Odd/Even

TCE 004177905-02



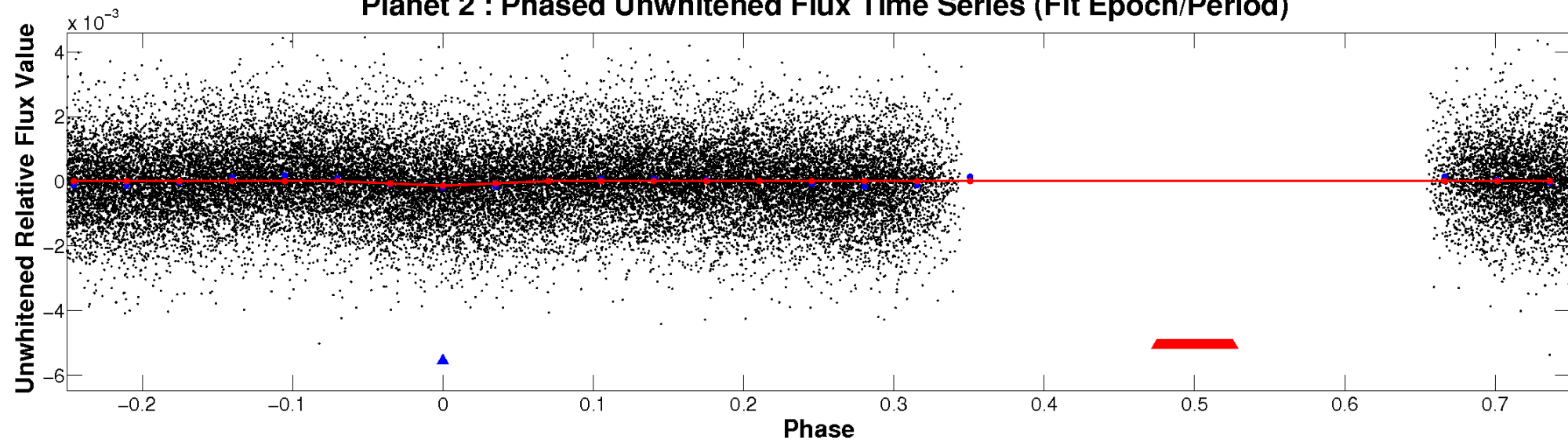
ALT Odd/Even

TCE 004177905-02

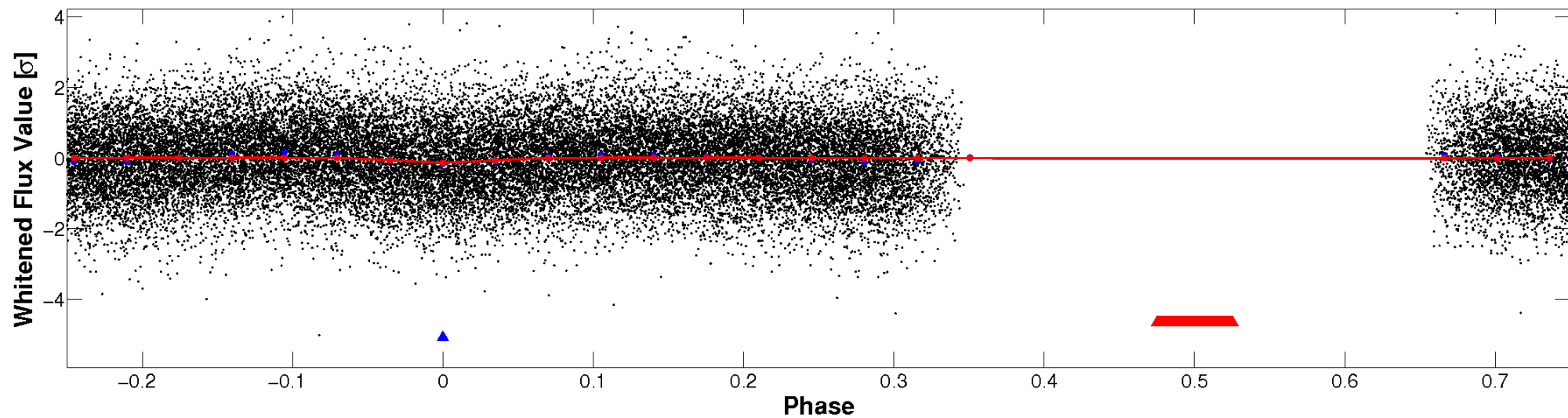


Non-Whitened Vs. Whitened Light Curve

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

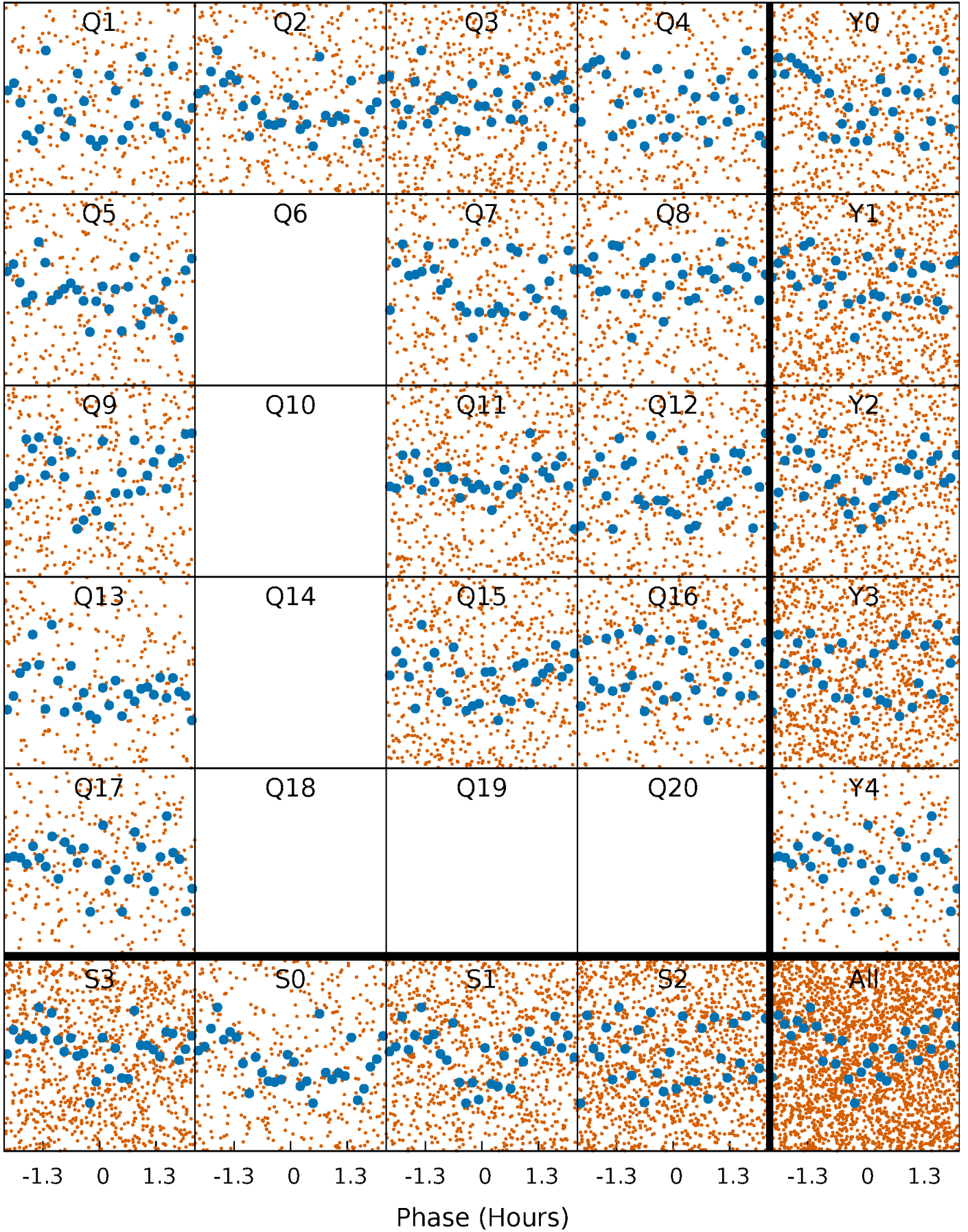


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



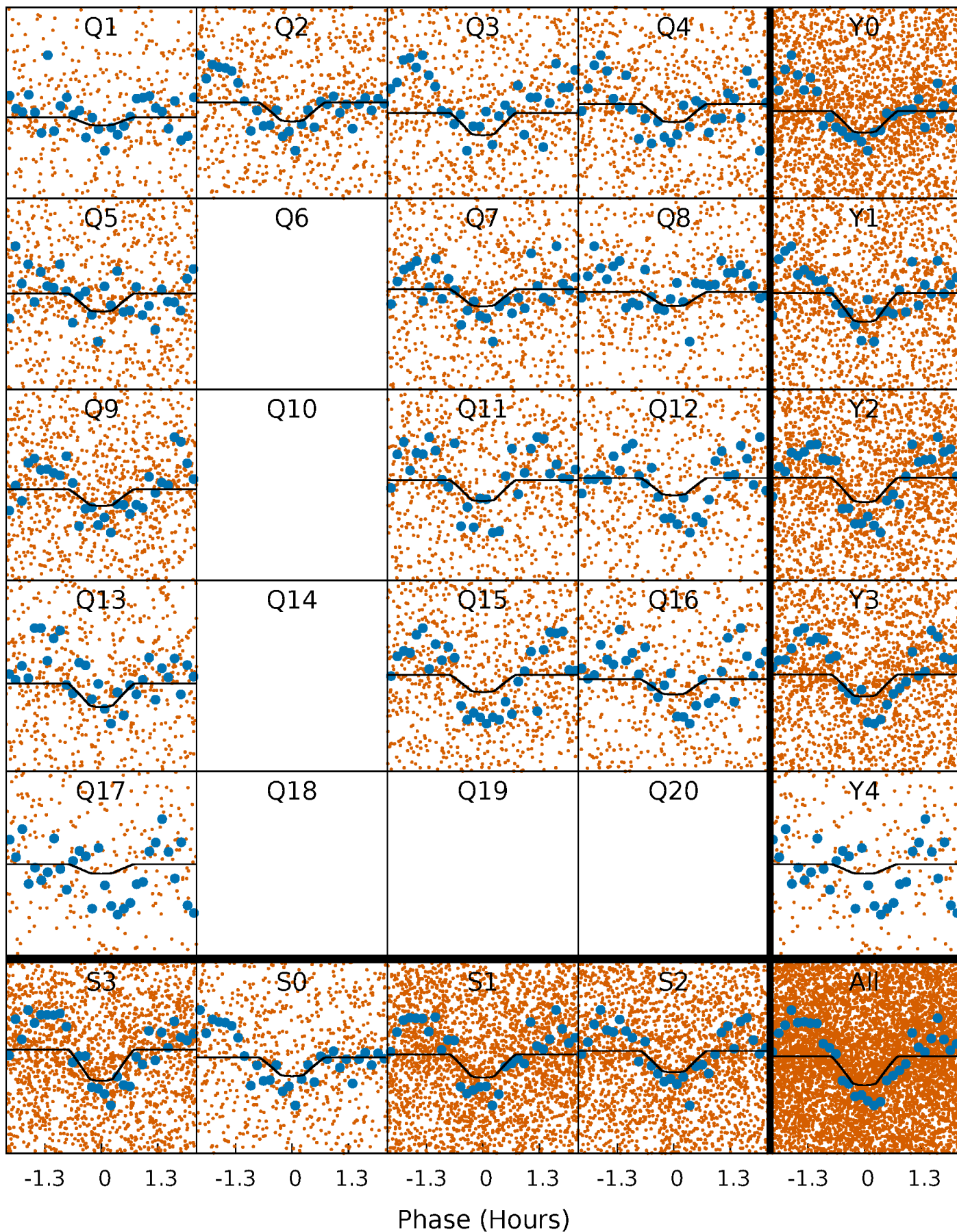
PDC Quarter-Phased Transit Curves

TCE 004177905-02 P= 0.582682 Days $T_0=131.616136$ (BKJD)



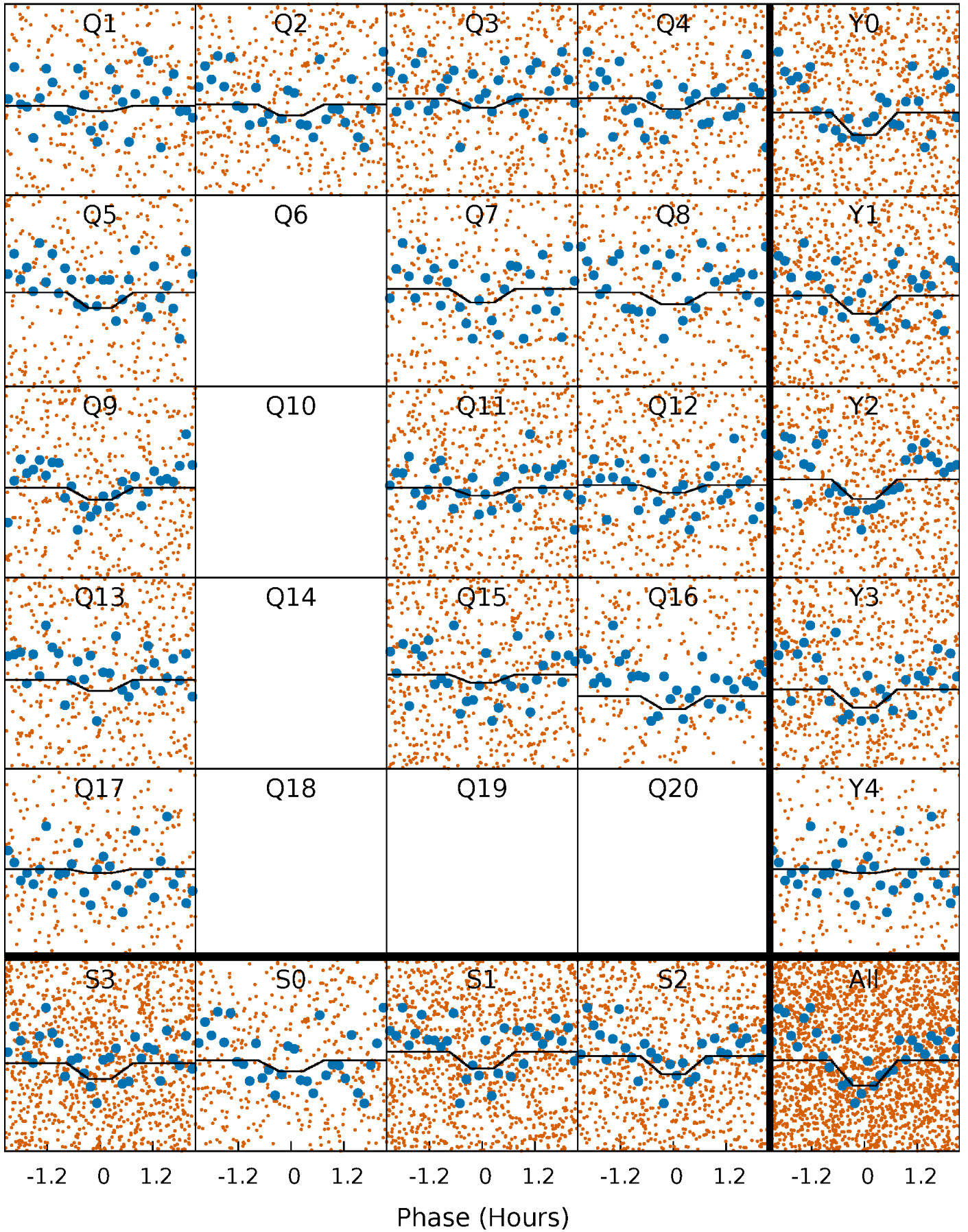
DV Quarter-Phased Transit Curves

TCE 004177905-02 P= 0.582682 Days $T_0=131.616136$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

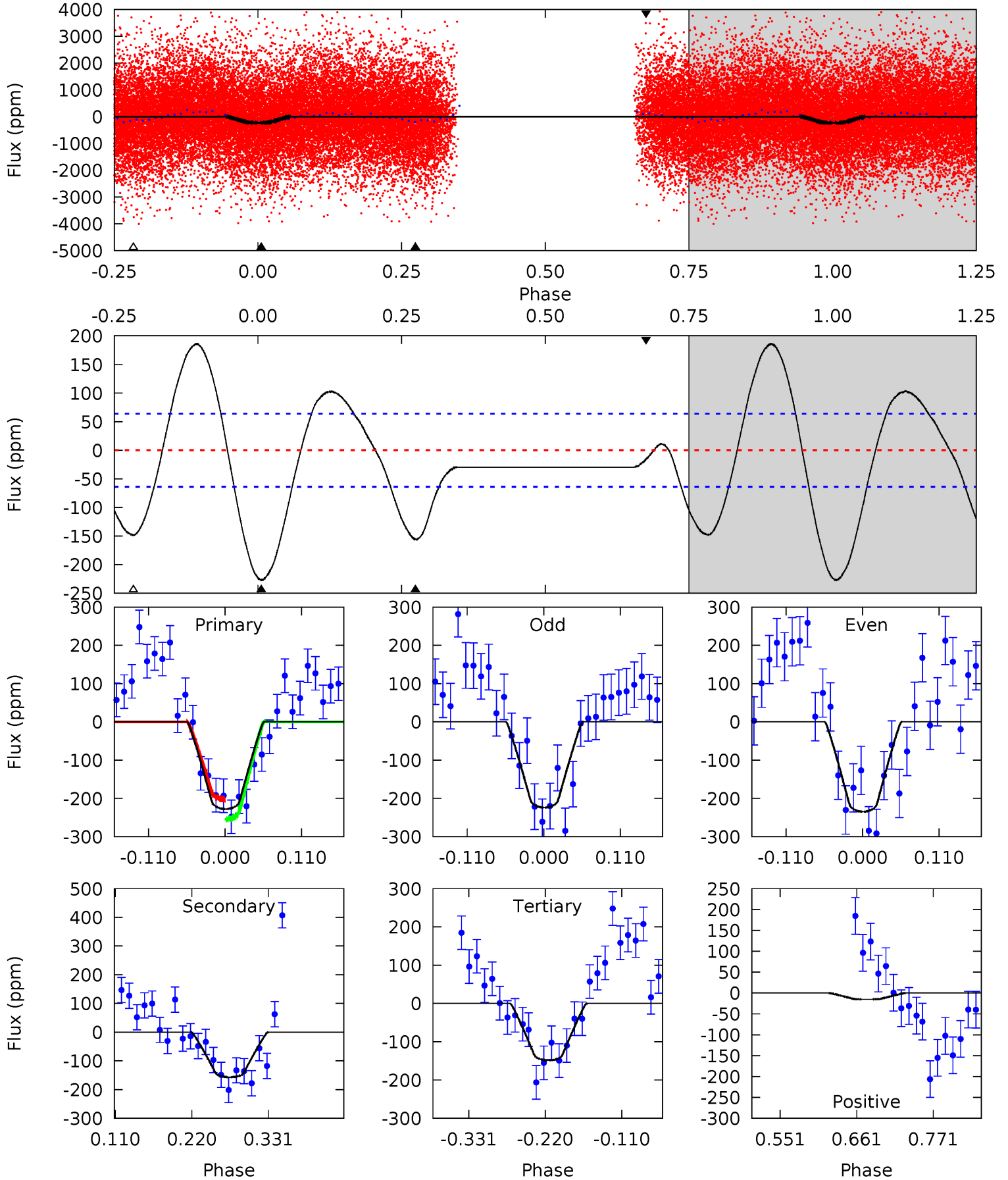
TCE 004177905-02 P= 0.582684 Days $T_0=131.616298$ (BKJD)



DV Model-Shift Uniqueness Test

004177905-02, P = 0.582682 Days, E = 131.033454 Days

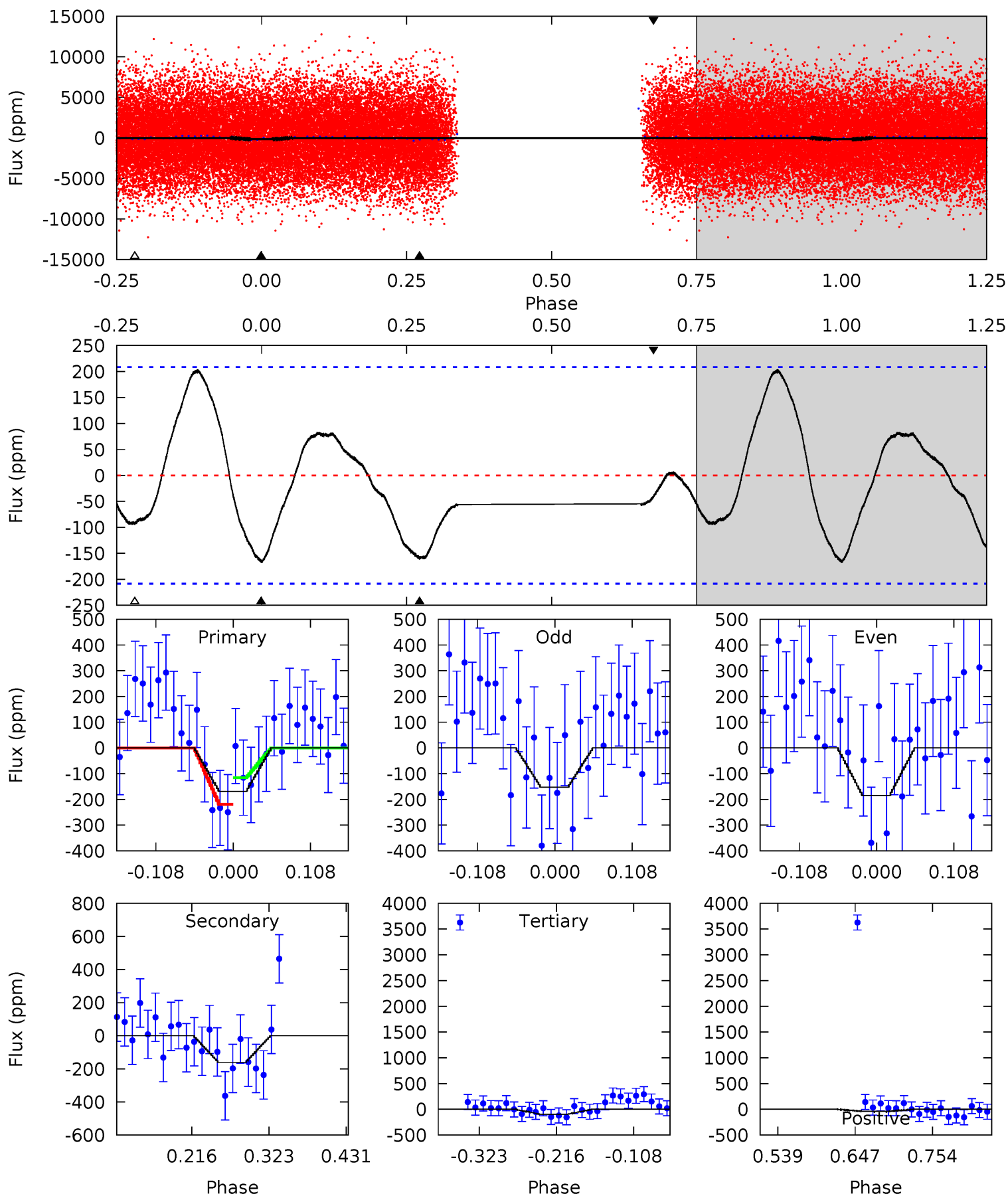
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	11.2	10.6	-1.08	4.54	1.60	7.27	5.64	17.3	0.58	12.2	0.38	0.96	0.45	1.86



Alt Model-Shift Uniqueness Test

004177905-02, P = 0.582684 Days, E = 131.033614 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.68	3.52	2.08	-0.85	4.55	1.61	1.78	1.60	4.53	1.44	4.37	0.35	0.90	0.55	1.13



Stellar Parameters For KIC 004177905

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7387^{+203}_{-330}	$3.898^{+0.279}_{-0.129}$	$-0.060^{+0.200}_{-0.350}$	$2.481^{+0.485}_{-0.901}$	$1.775^{+0.194}_{-0.389}$	$0.164^{+0.329}_{-0.060}$
	+3%/-4%	+7%/-3%	+333%/-583%	+20%/-36%	+11%/-22%	+201%/-37%
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 004177905-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-157 ± 14	$3.57^{+3.11}_{-2.19}$	5480^{+392}_{-513}	6522^{+7091}_{-2144}	$1.828^{+10.864}_{-1.302}$
Alt.	-161 ± 46	$3.66^{+2.89}_{-2.23}$	5474^{+421}_{-473}	6478^{+6486}_{-2192}	$1.803^{+9.711}_{-1.286}$

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

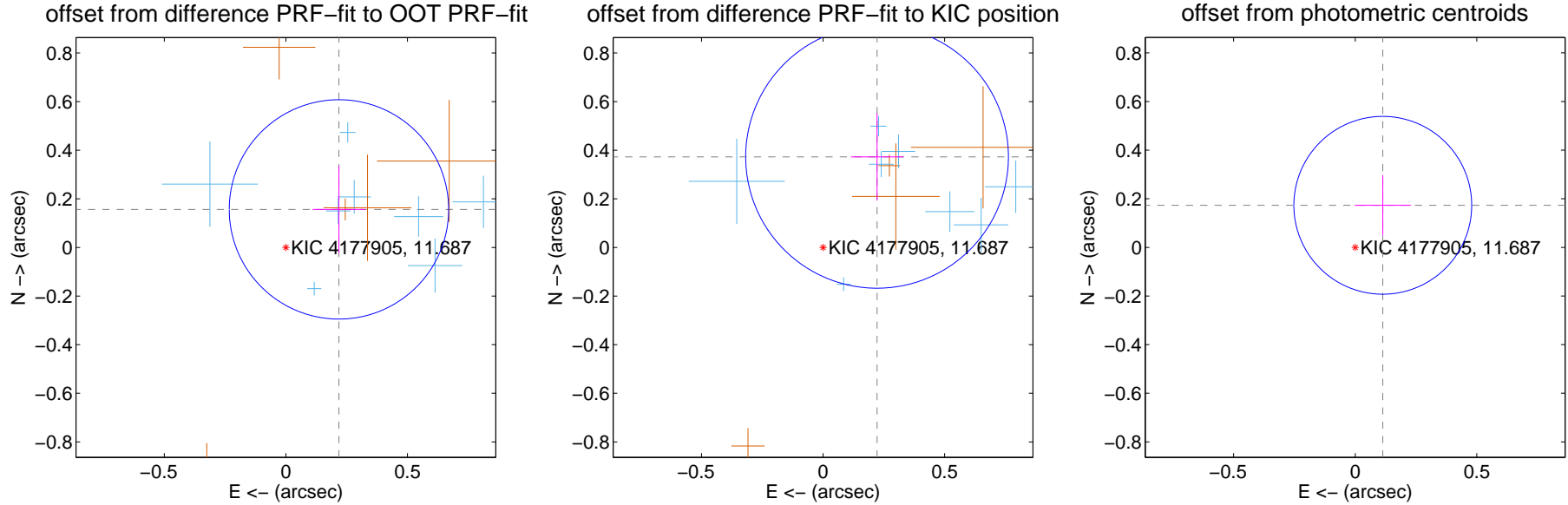
DV Centroid Data

Supplemental centroid analysis for 004177905-02. **Kepler magnitude: 11.69.** Transit SNR 6.90

There are 8 quarters with good PRF difference image offsets

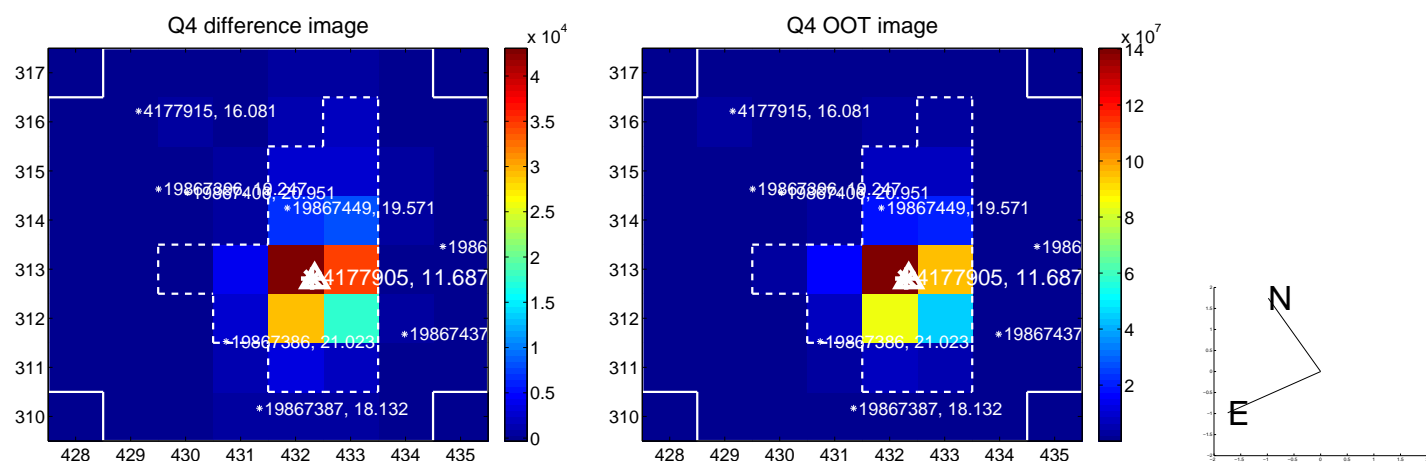
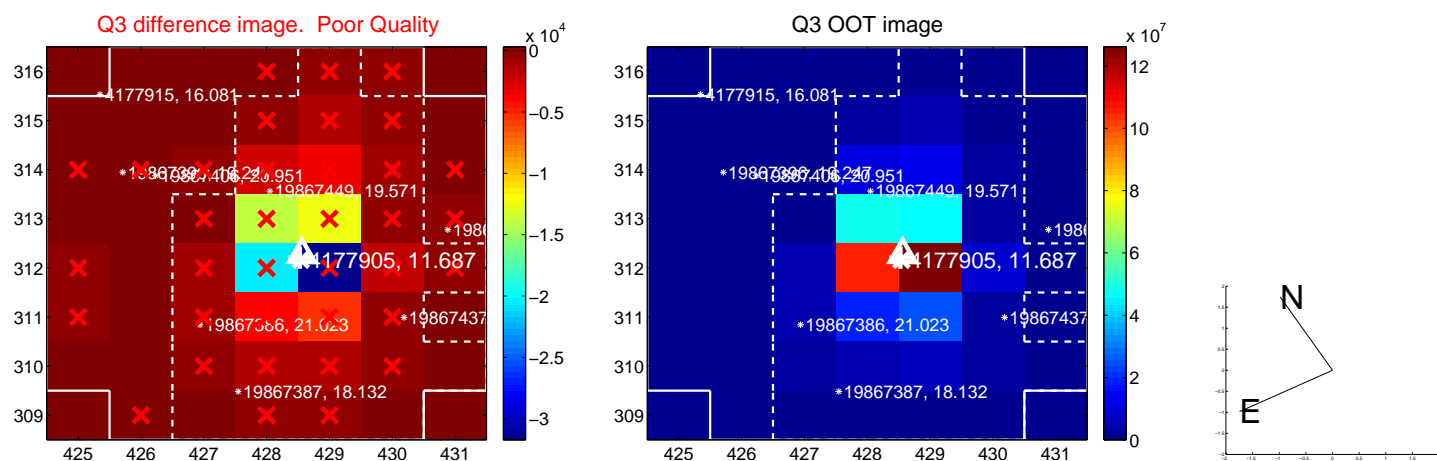
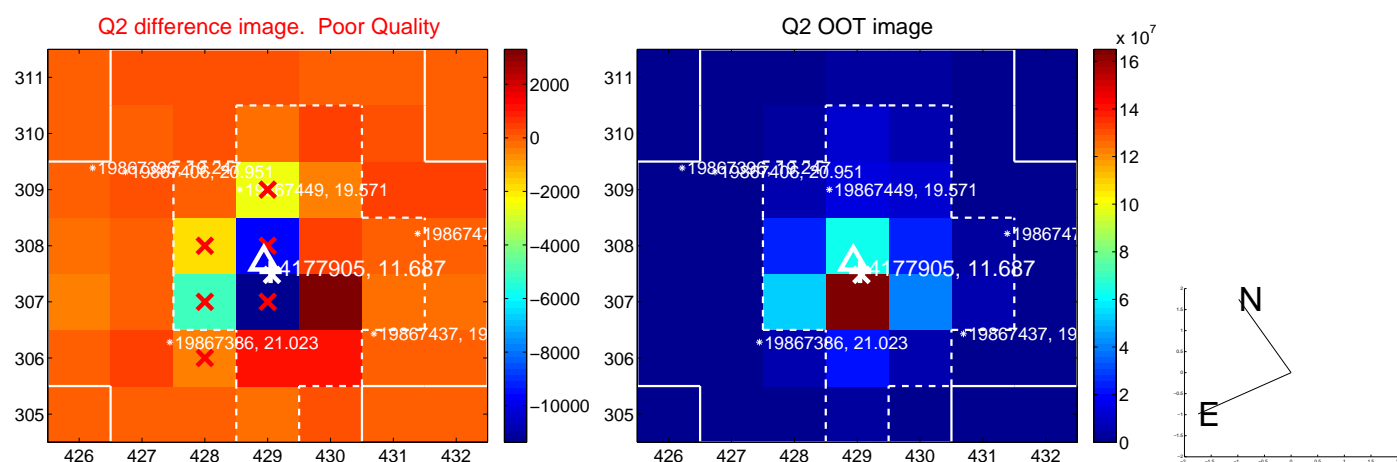
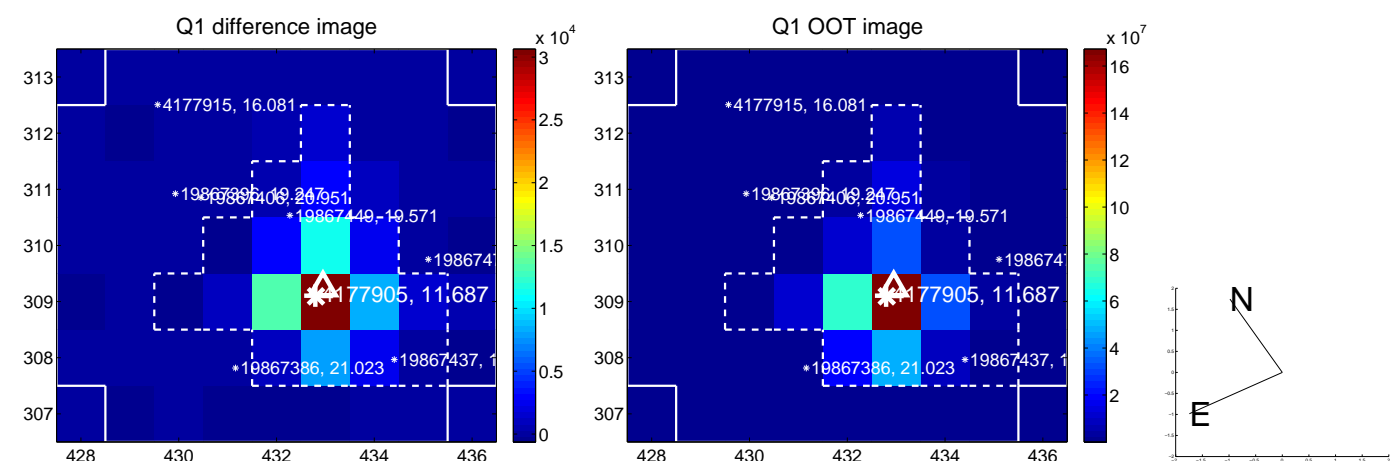
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.269 ± 0.150	1.79	-0.218 ± 0.108	0.157 ± 0.180
PRF-fit source offset from KIC position	0.434 ± 0.180	2.41	-0.222 ± 0.108	0.373 ± 0.179
photometric centroid source offset	0.21 ± 0.12	1.70	-0.11 ± 0.12	0.17 ± 0.12

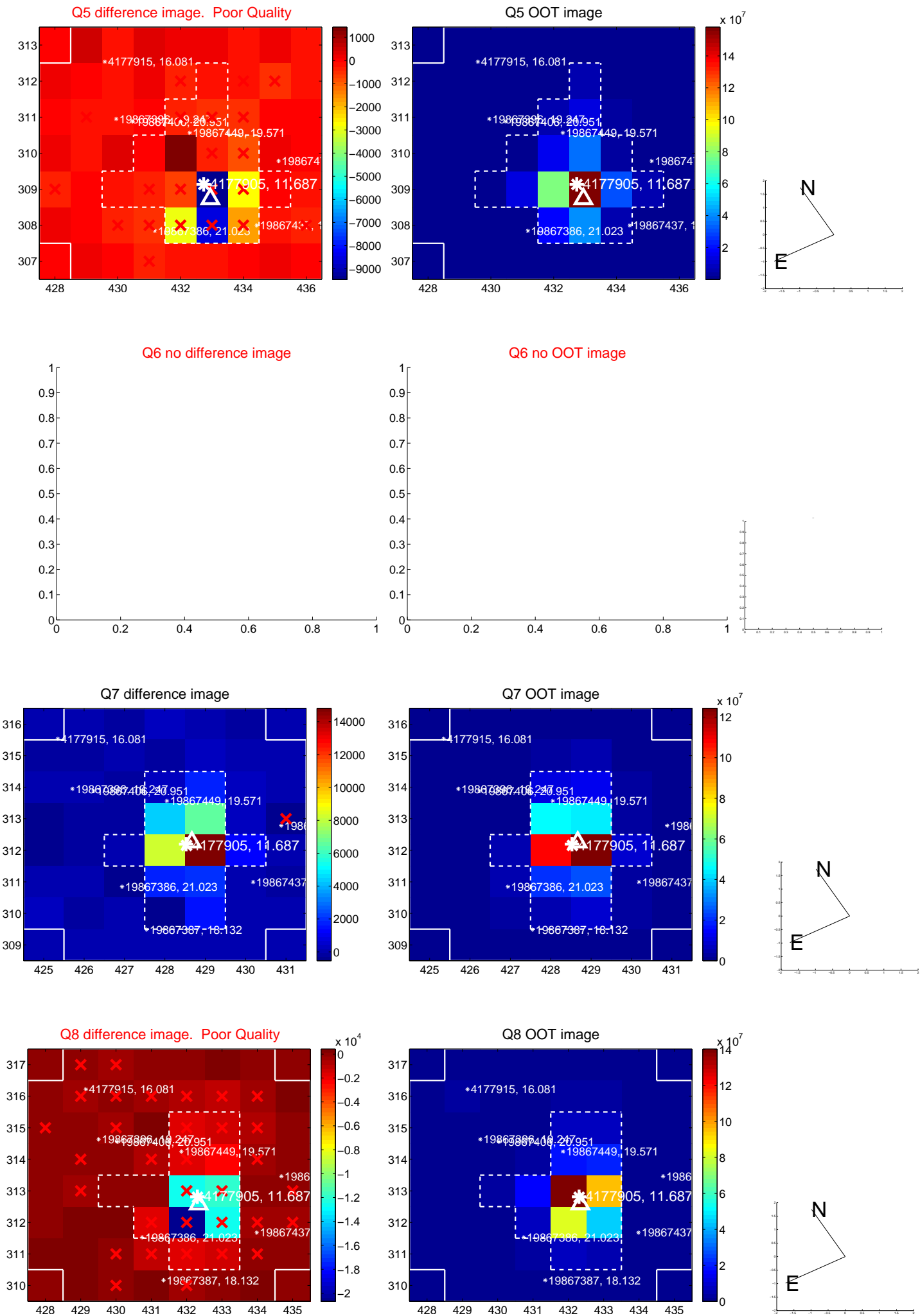


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

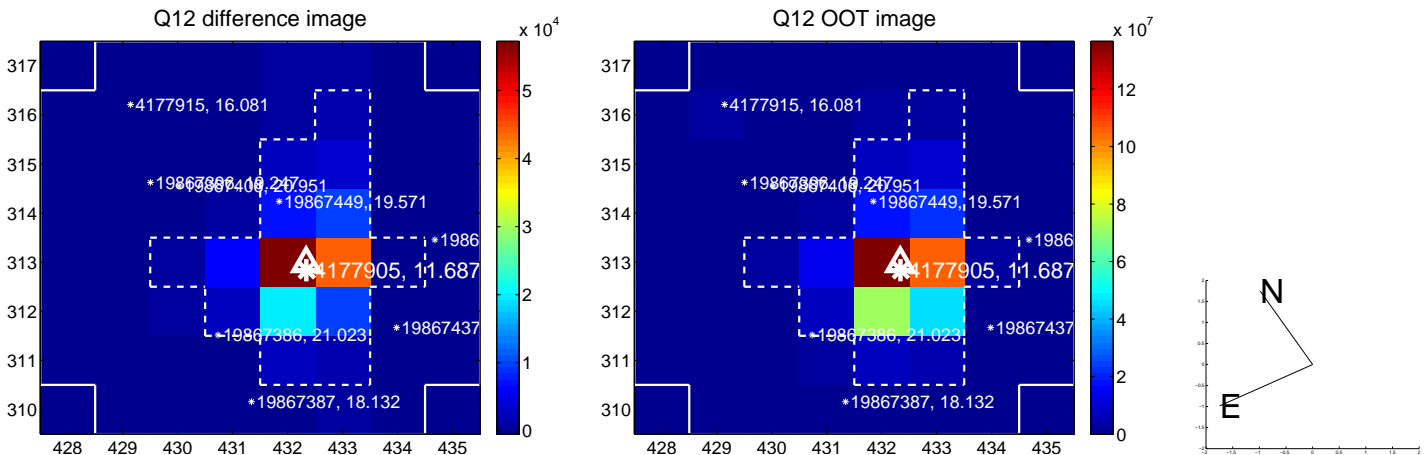
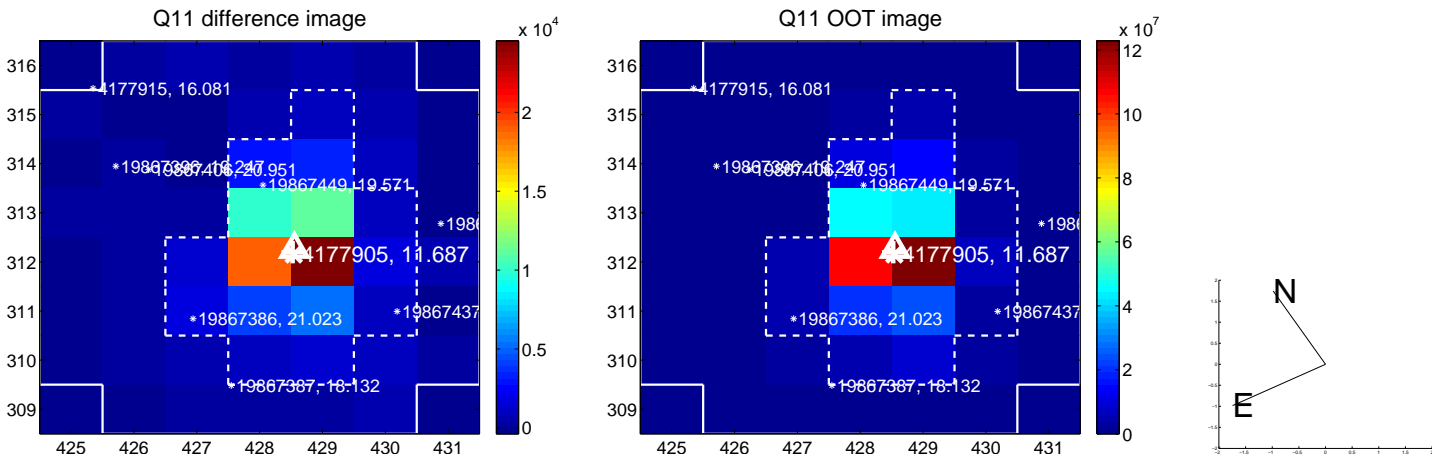
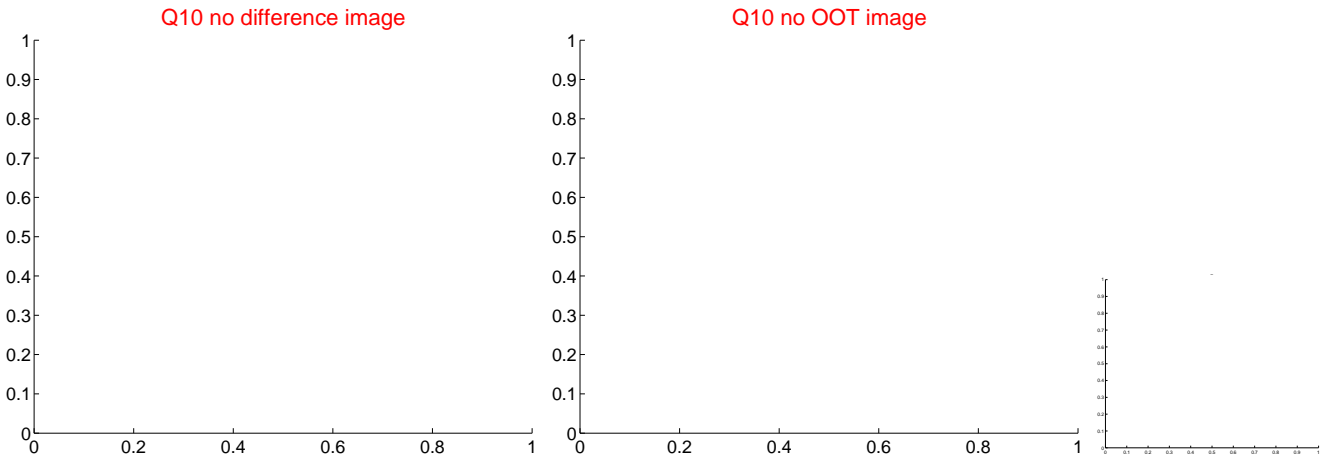
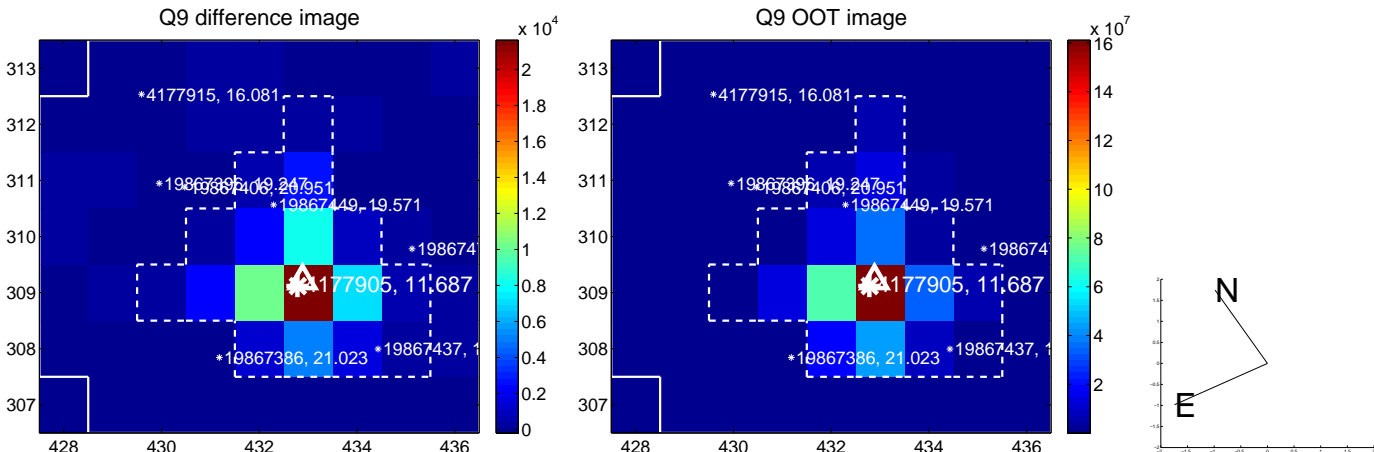
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



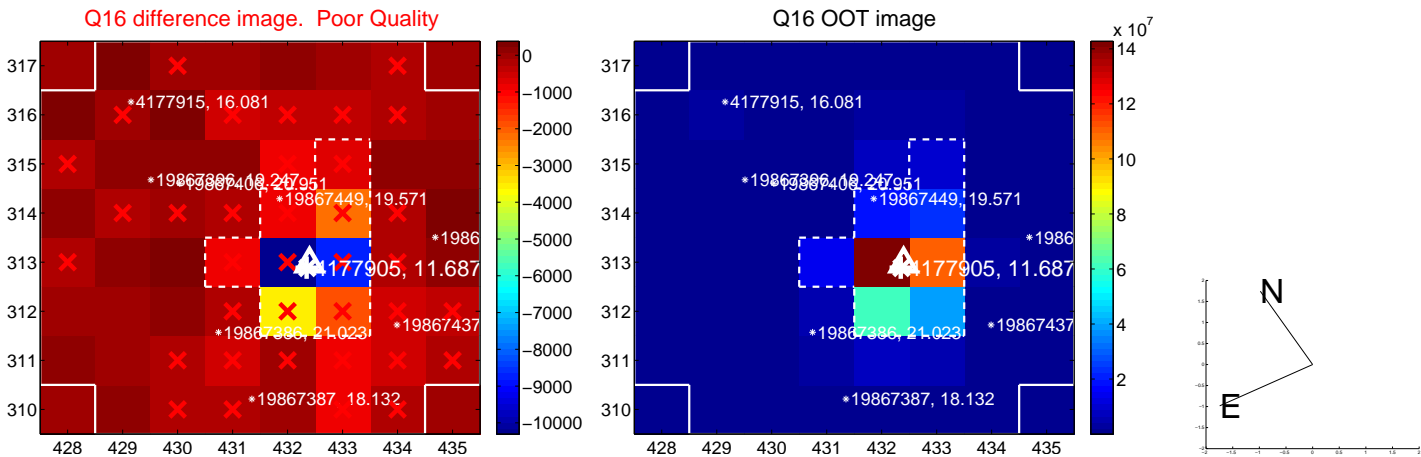
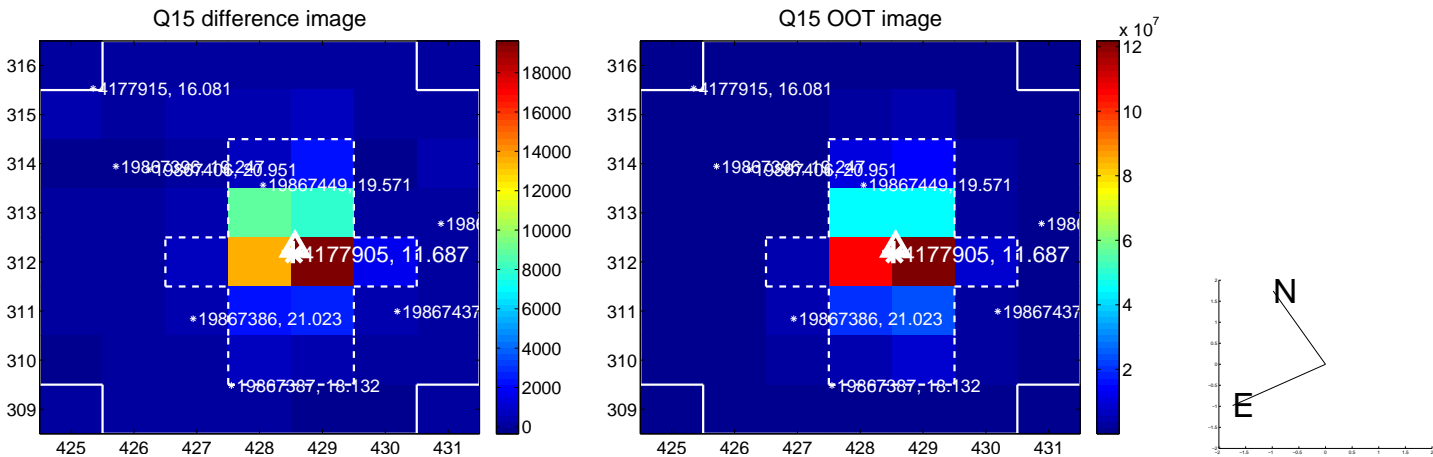
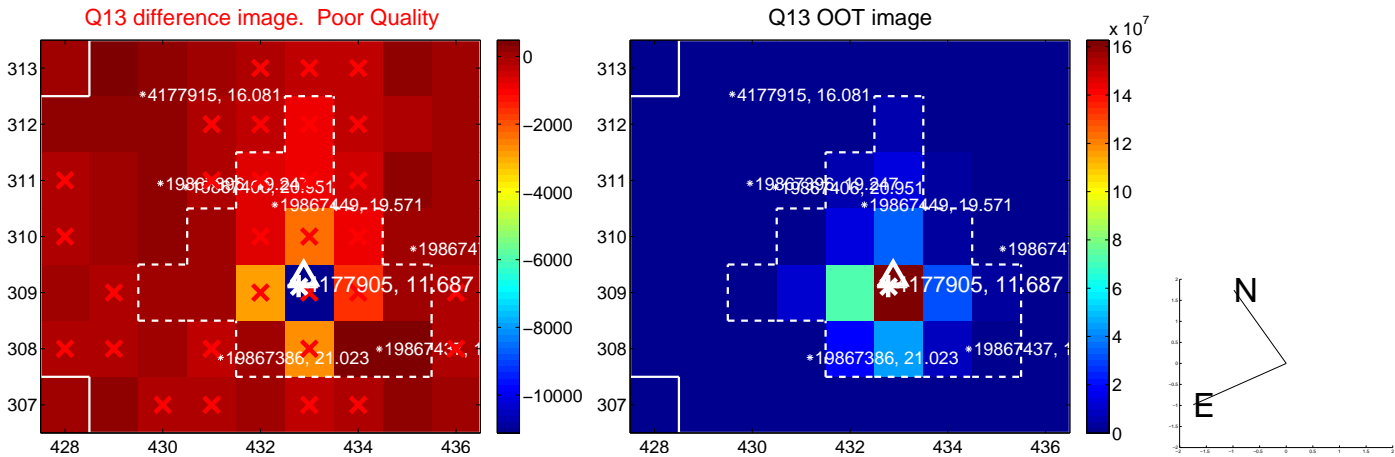
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



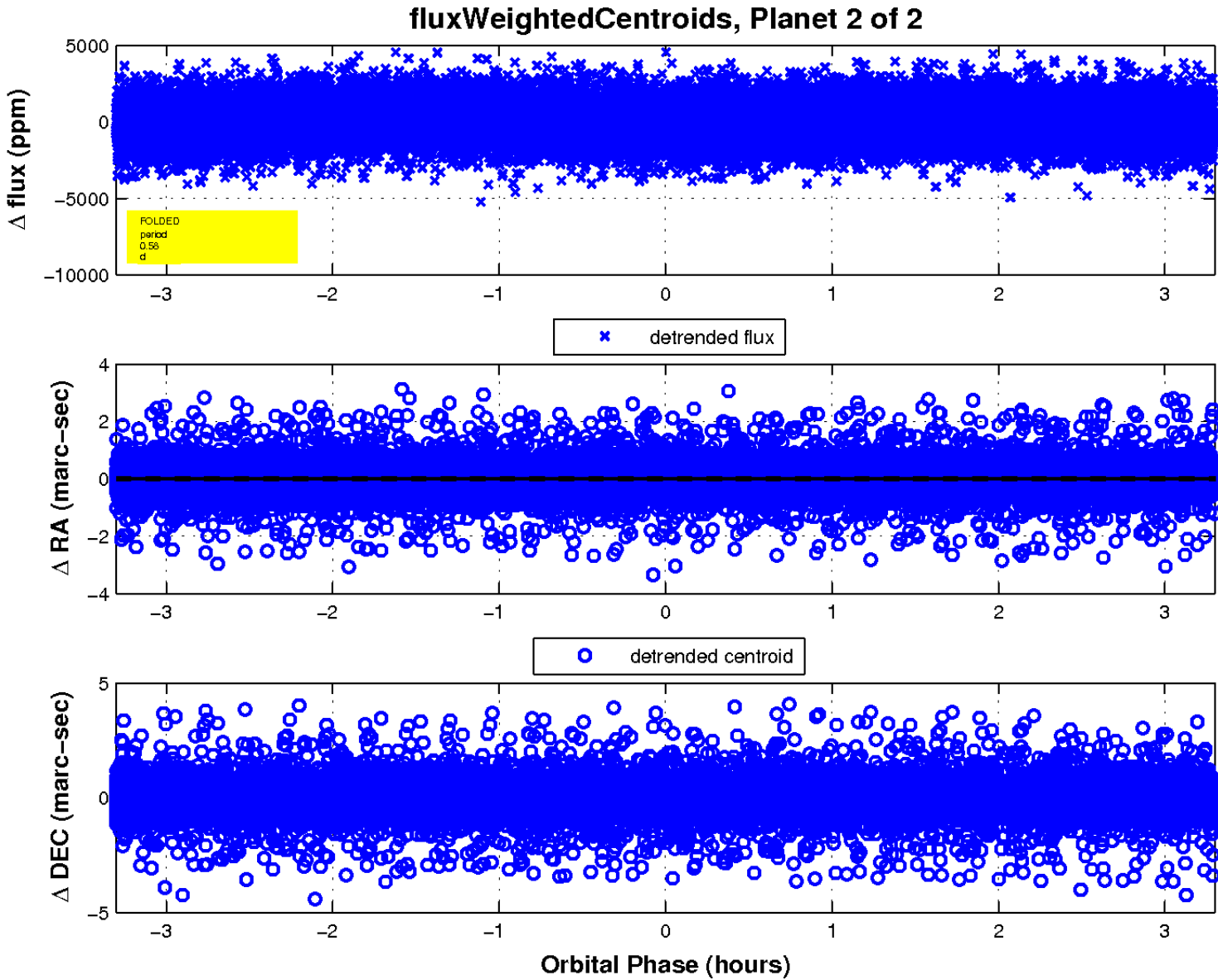
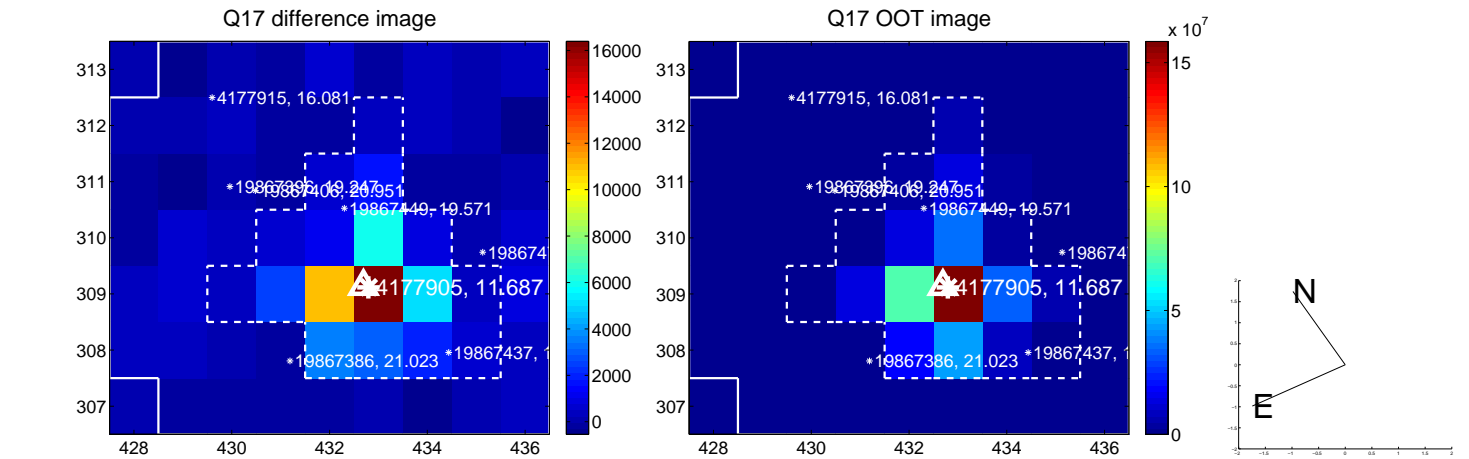
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

