

KIC 005196787

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})
005196787-01	OBS	No	0.555470	131.652581	157.5	1.327	12.5	12.5	1.48	7324	1.99	25944.38
005196787-02	OBS	No	0.827345	132.205689	227.2	7.137	11.1	19.2	1.48	7324	2.29	15252.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005196787-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005196787-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT

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

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

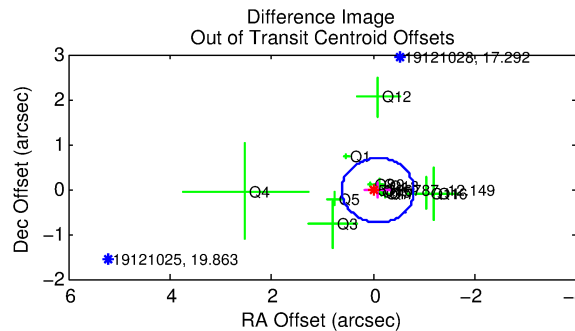
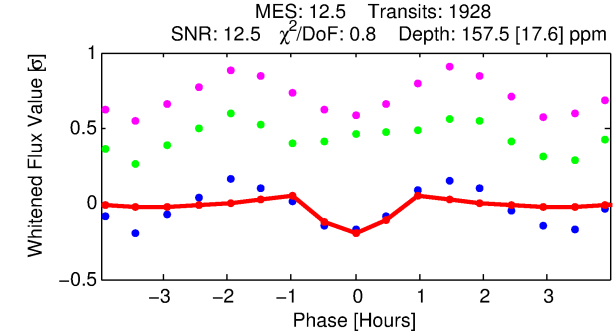
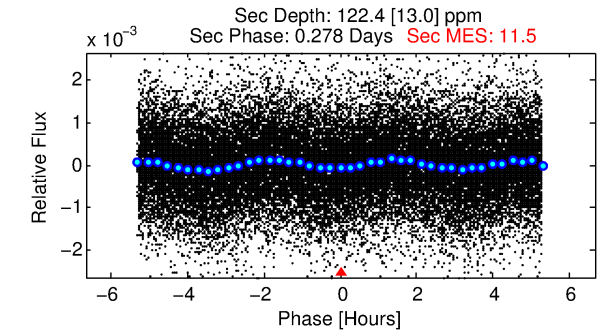
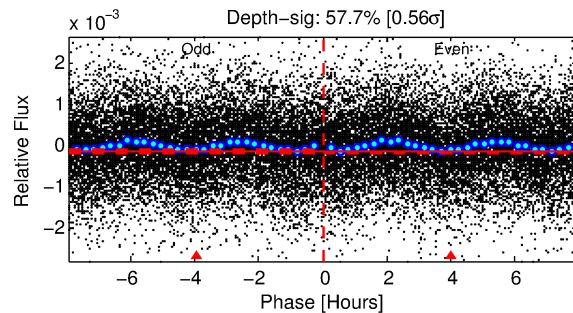
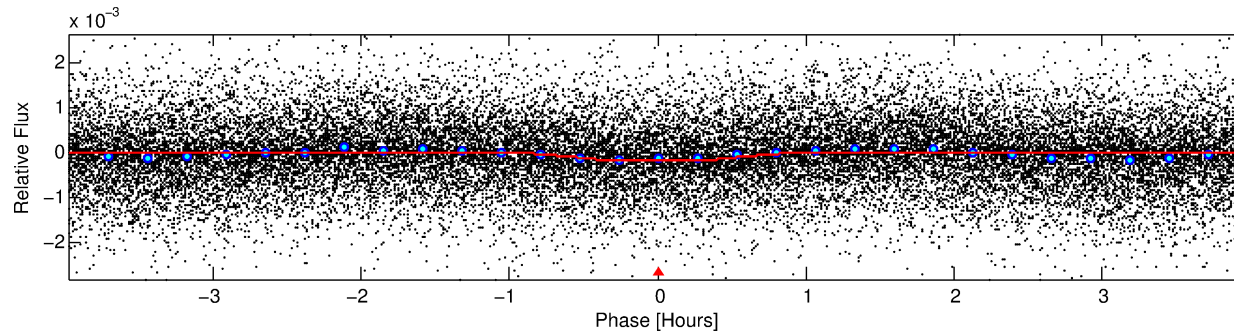
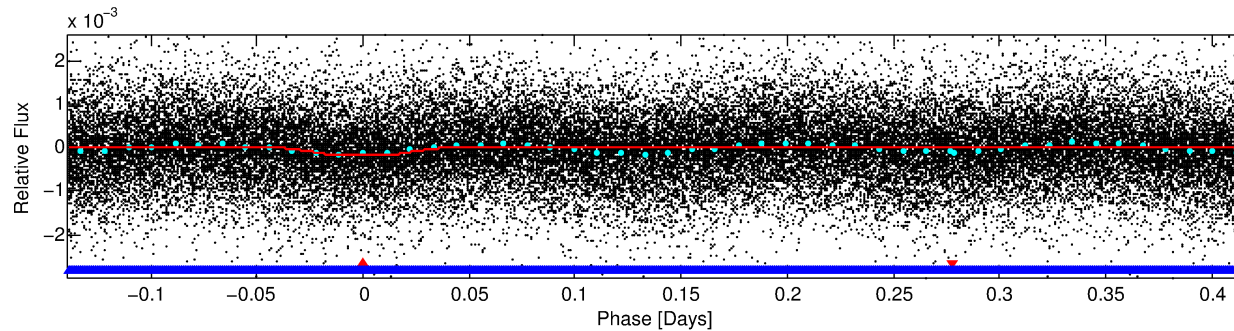
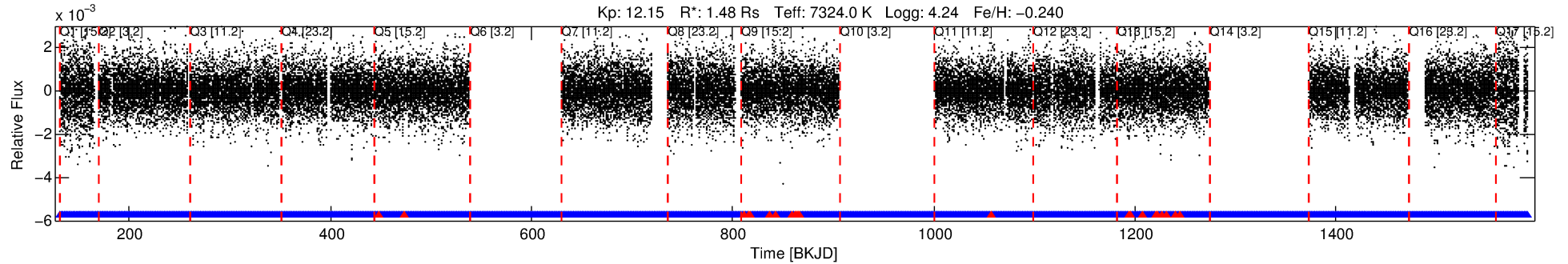
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005196787-01

No Significant Match Found

DV One-Page Summary

KIC: 5196787 Candidate: 1 of 2 Period: 0.555 d



DV Fit Results:

Period = 0.55547 [0.00001] d
Epoch = 131.6526 [0.0012] BKJD
Rp/R* = 0.0123 [0.0029]
a/R* = 2.57 [3.12]
b = 0.66 [1.21]
Seff = 25944.38 [11089.14]
Teq = 3236 [346] K
Rp = 1.98 [0.82] Re
a = 0.0148 [0.0041] AU
Ag = 3.73 [2.33] [1.17 σ]
Teff = 6952 [894] K [3.88 σ]

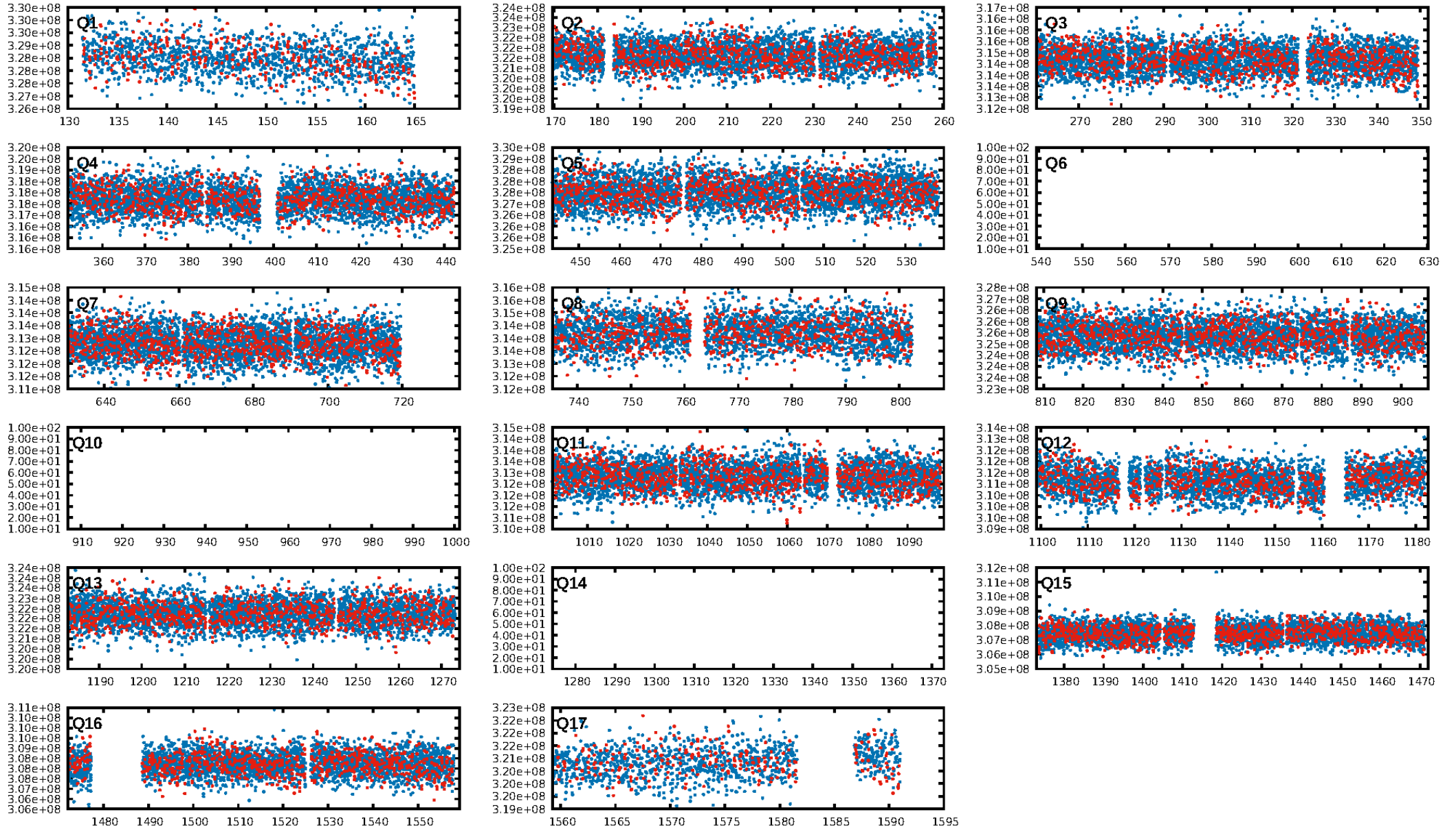
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 63.1% [0.90 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [1796/1818]
GhostDiagnostic-chr: 13.16
Centroid-sig: 18.7%
Centroid-so: 0.109 arcsec [1.11 σ]
OotOffset-rm: 0.089 arcsec [0.37 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 0.151 arcsec [0.76 σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.57 [8/14]
DiffImageOverlap-fno: 1.00 [14/14]

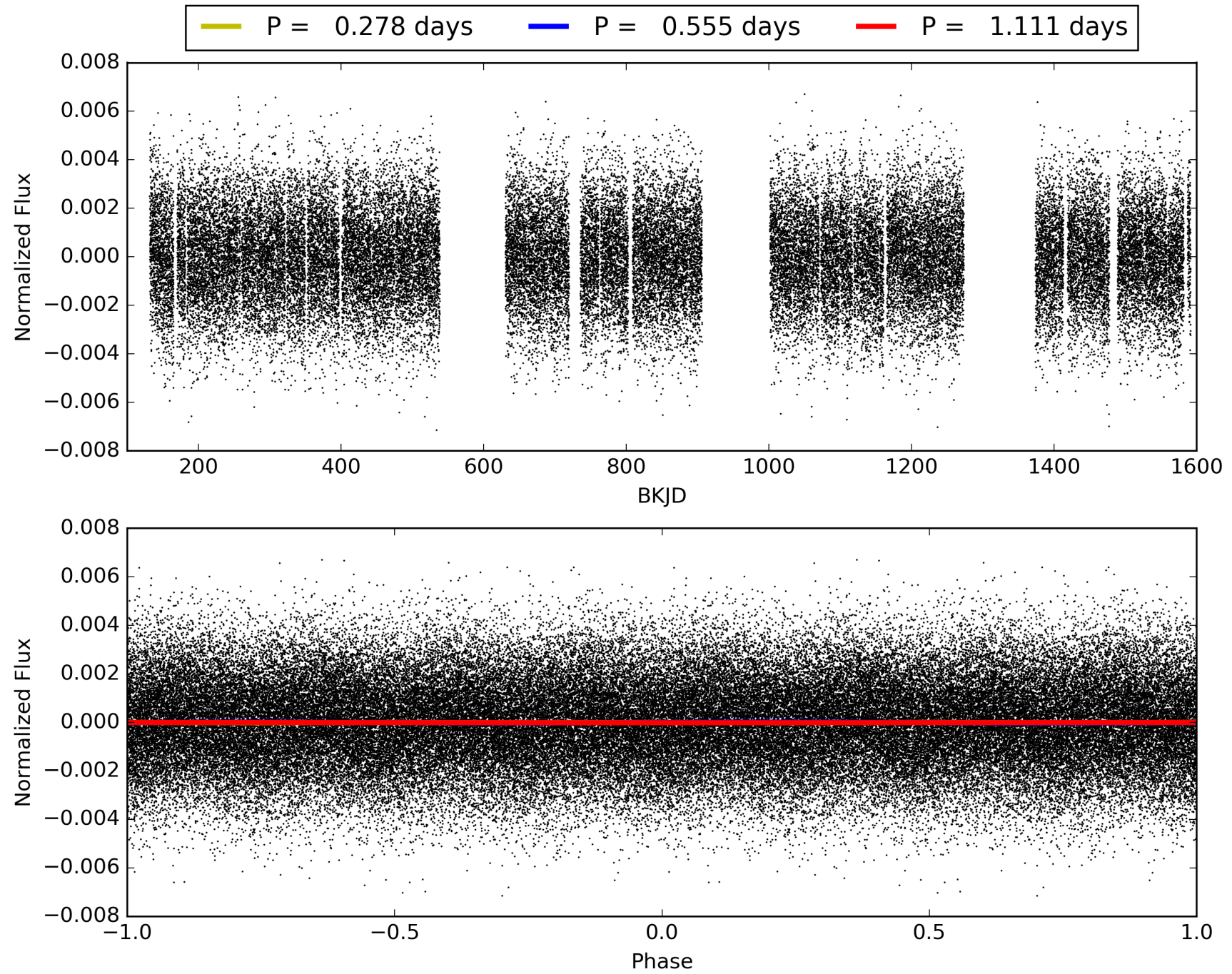
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:30:51 Z

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

TCE 005196787-01, PDC Light Curves

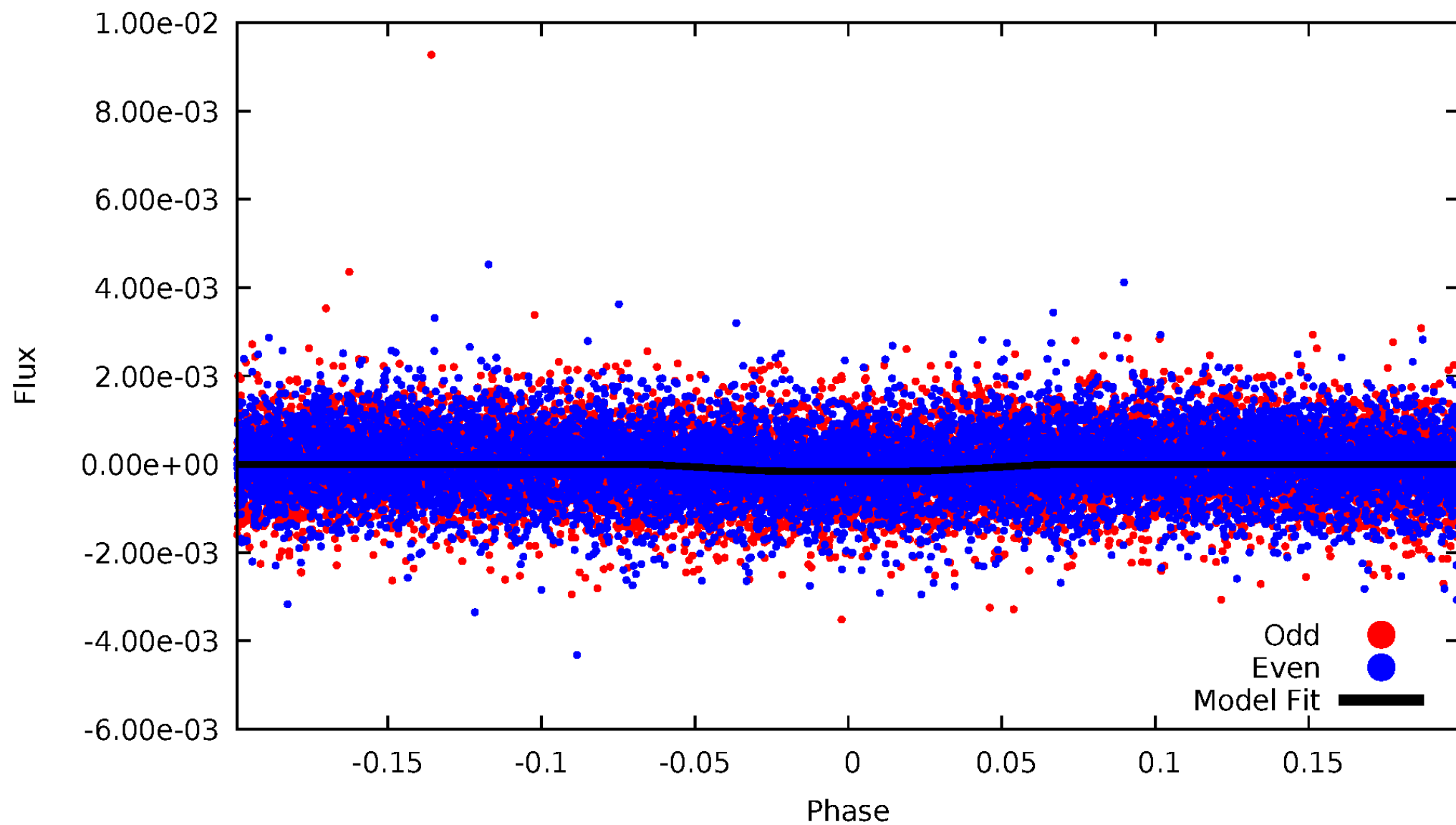


TCE 005196787-01



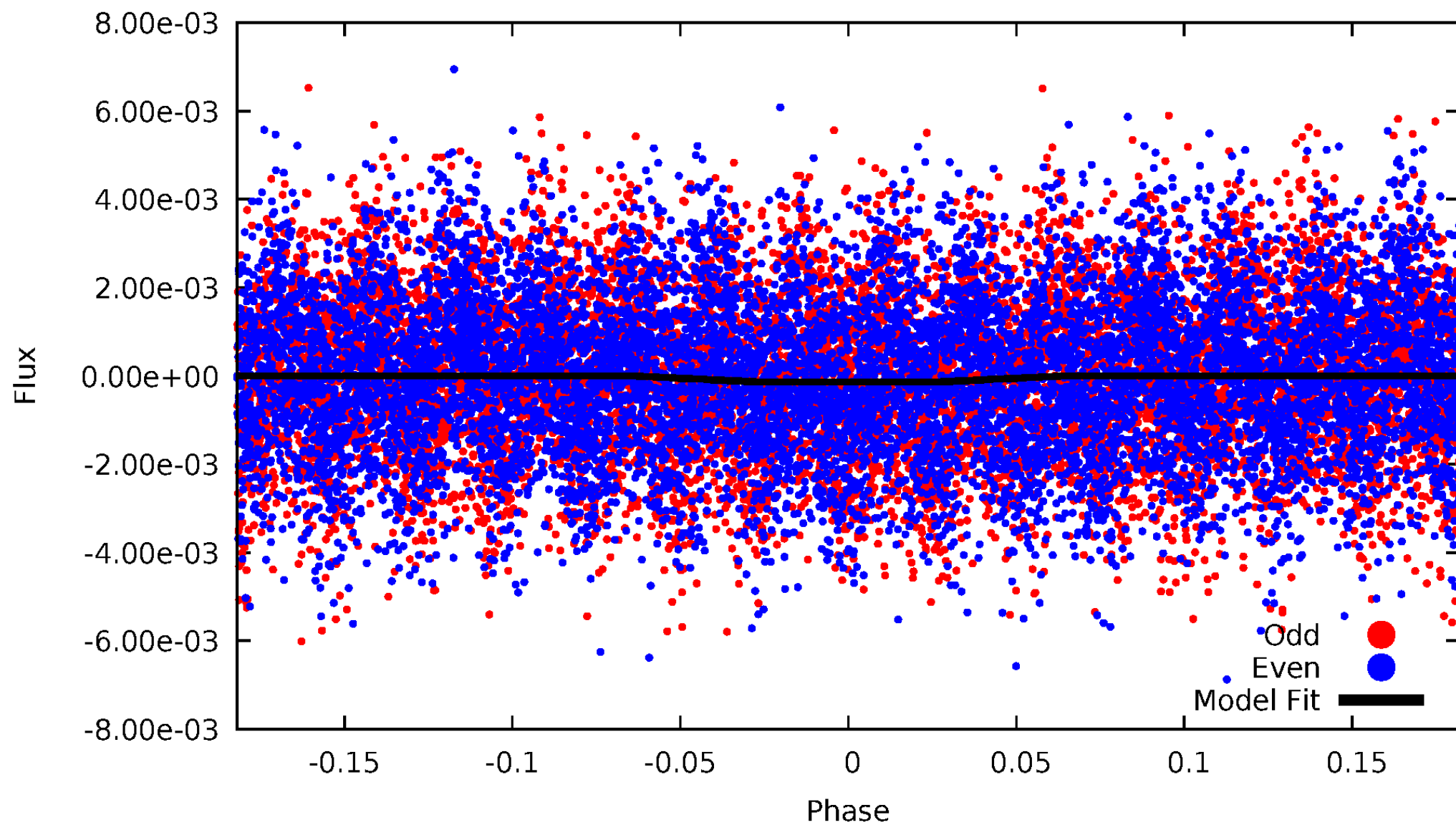
DV Odd/Even

TCE 005196787-01



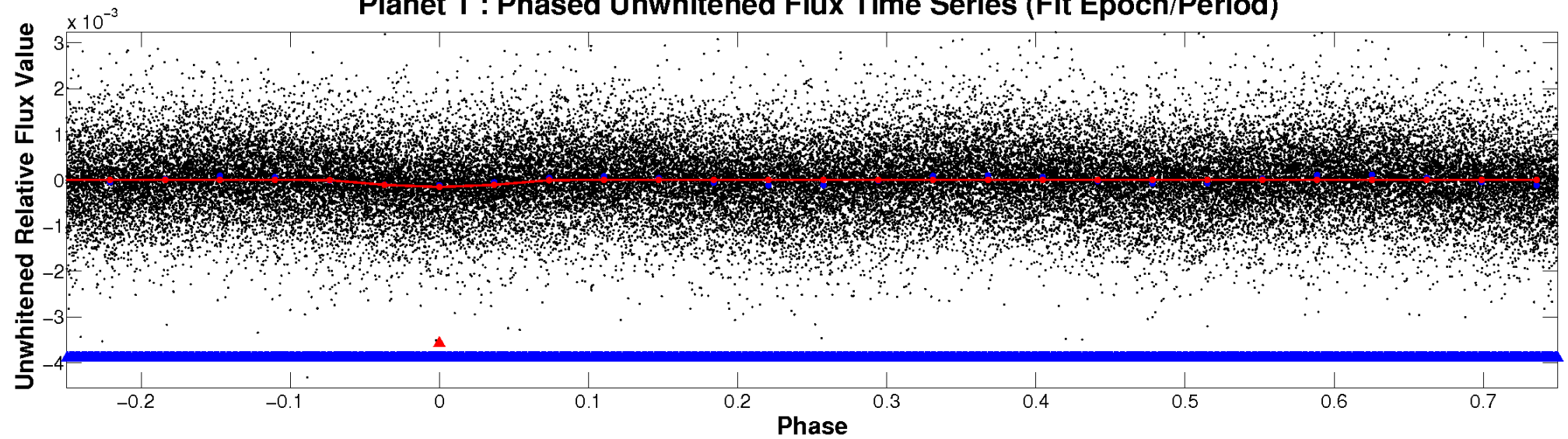
ALT Odd/Even

TCE 005196787-01

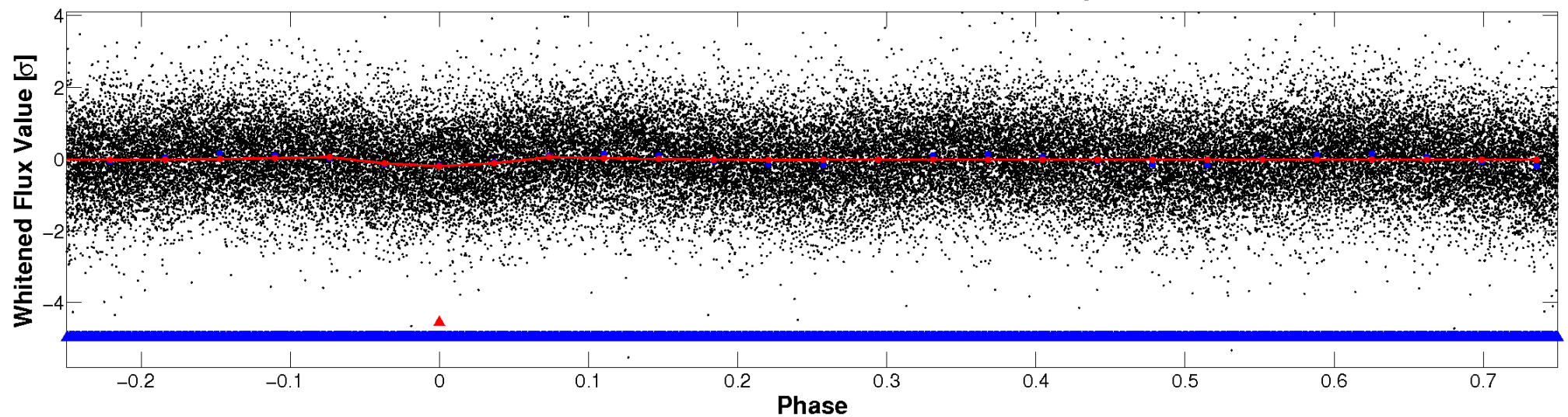


Non-Whitened Vs. Whitened Light Curve

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

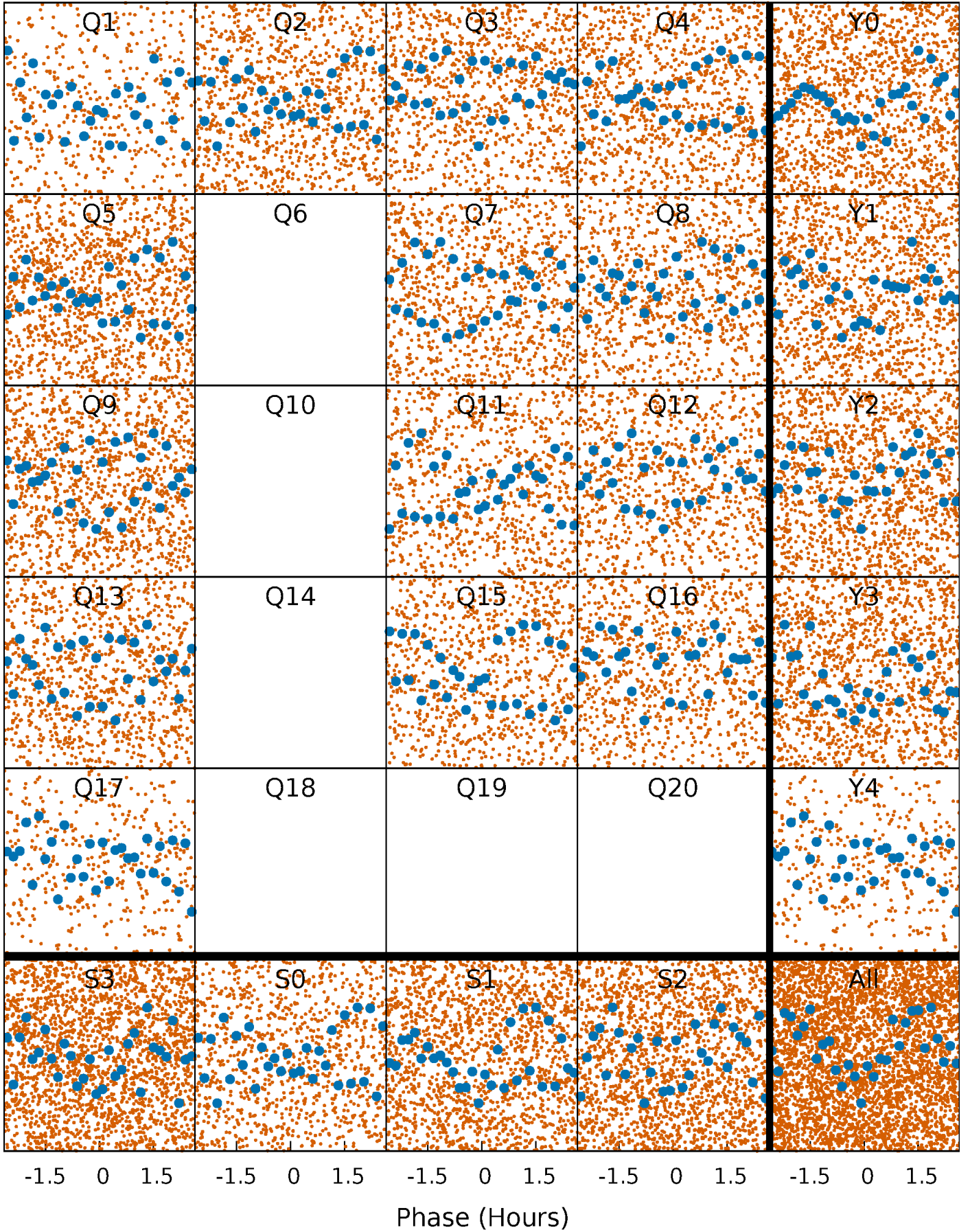


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



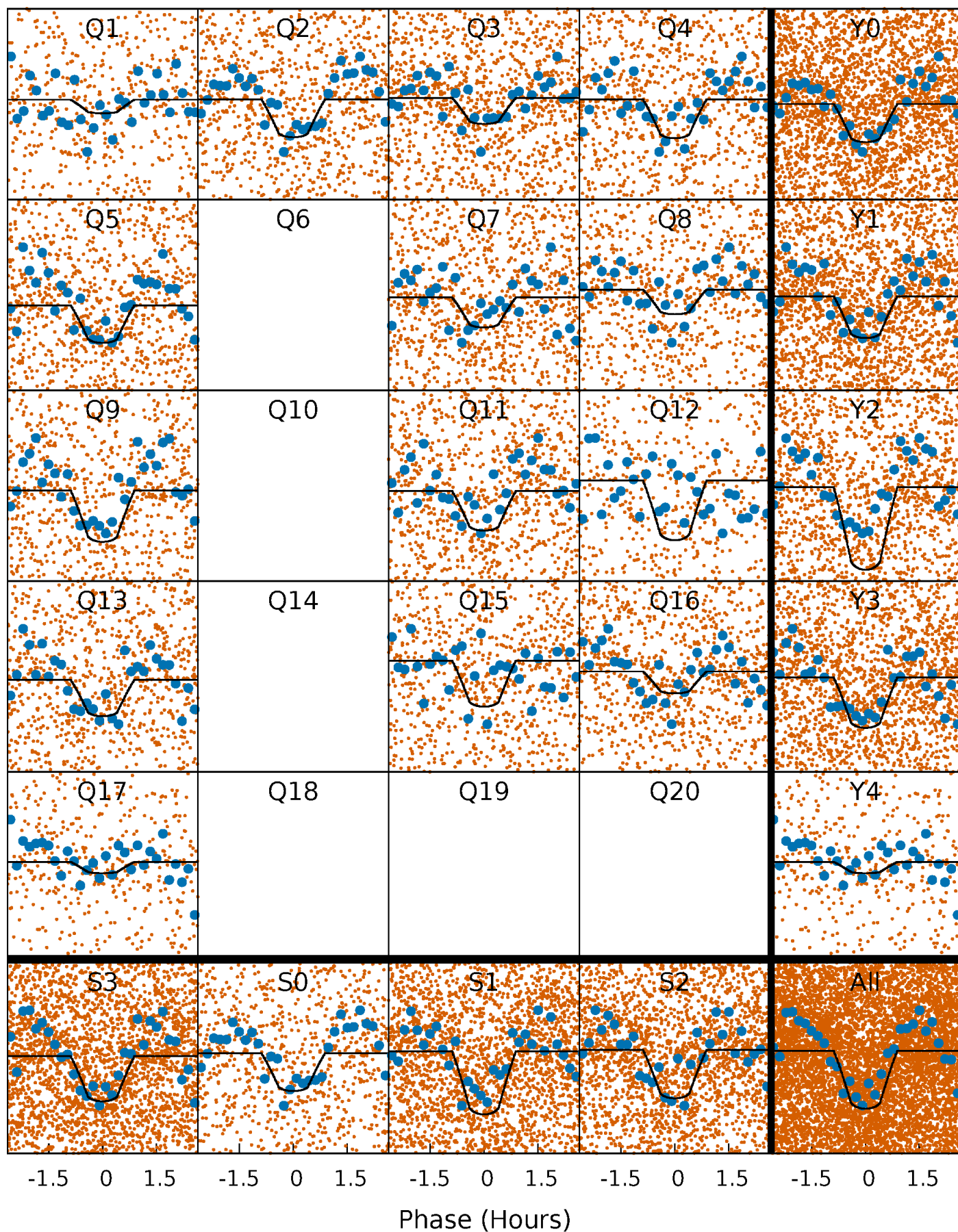
PDC Quarter-Phased Transit Curves

TCE 005196787-01 P= 0.555470 Days $T_0=131.652581$ (BKJD)



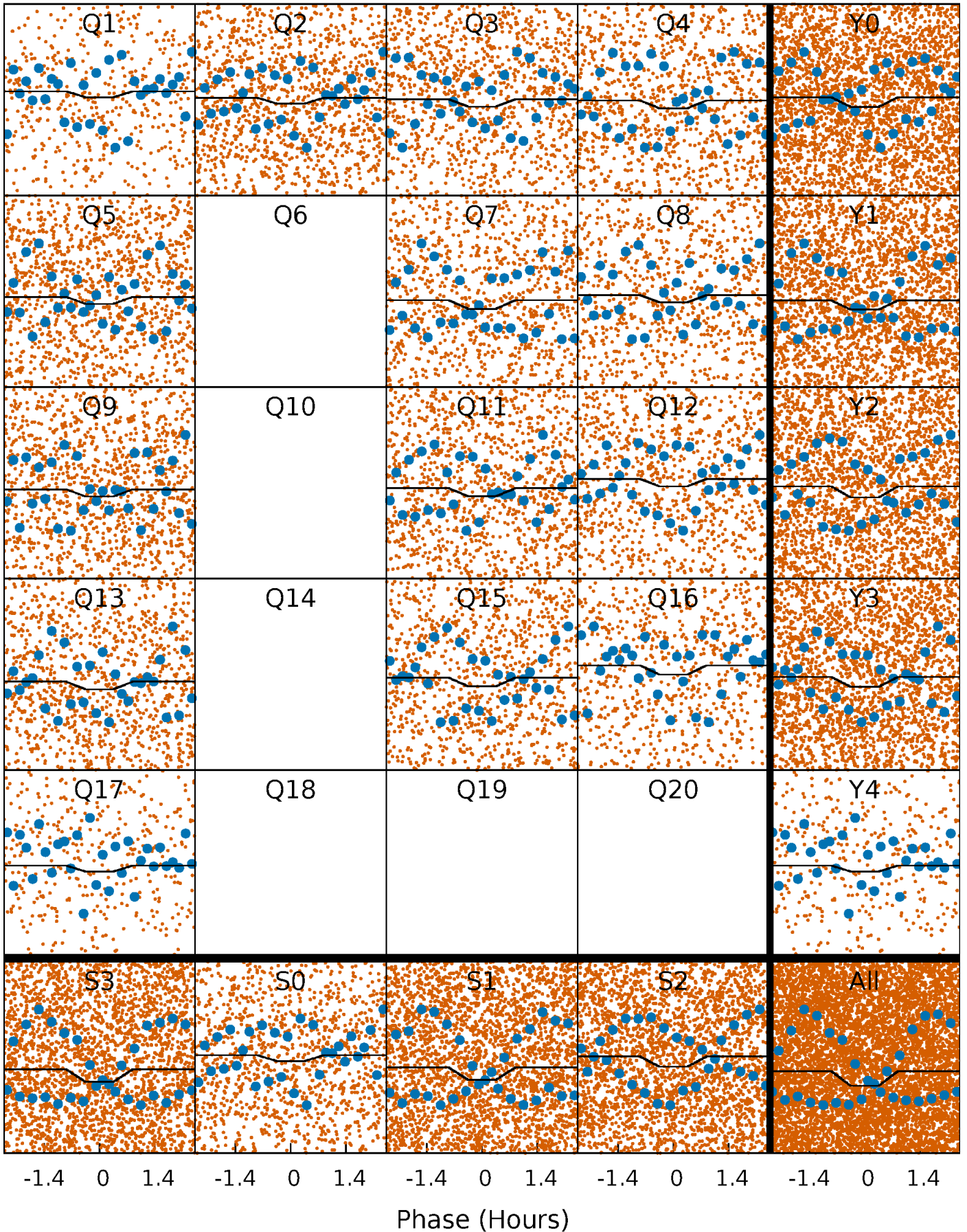
DV Quarter-Phased Transit Curves

TCE 005196787-01 P= 0.555470 Days $T_0=131.652581$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

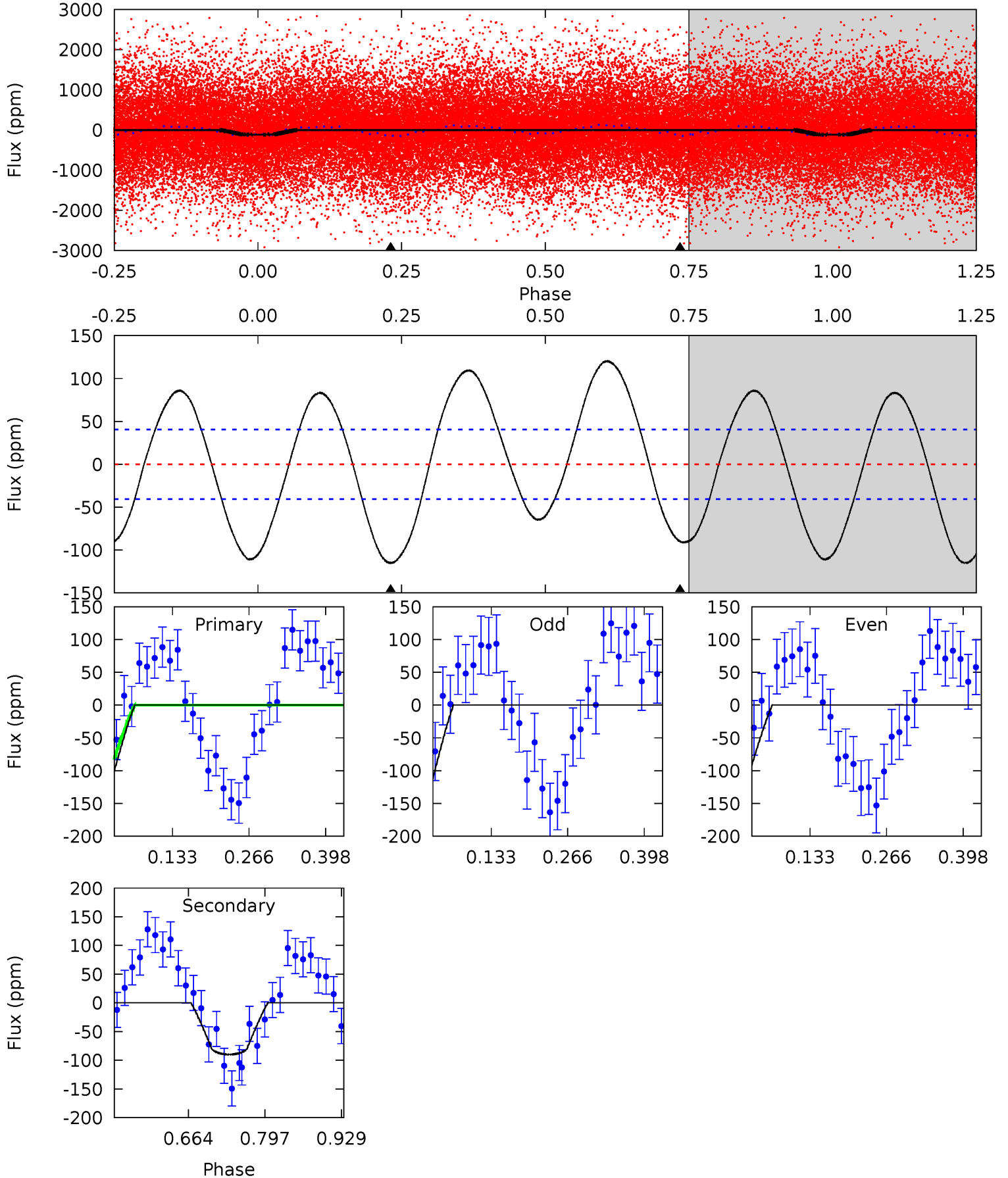
TCE 005196787-01 P= 0.555459 Days $T_0=131.650433$ (BKJD)



DV Model-Shift Uniqueness Test

005196787-01, P = 0.555470 Days, E = 131.097111 Days

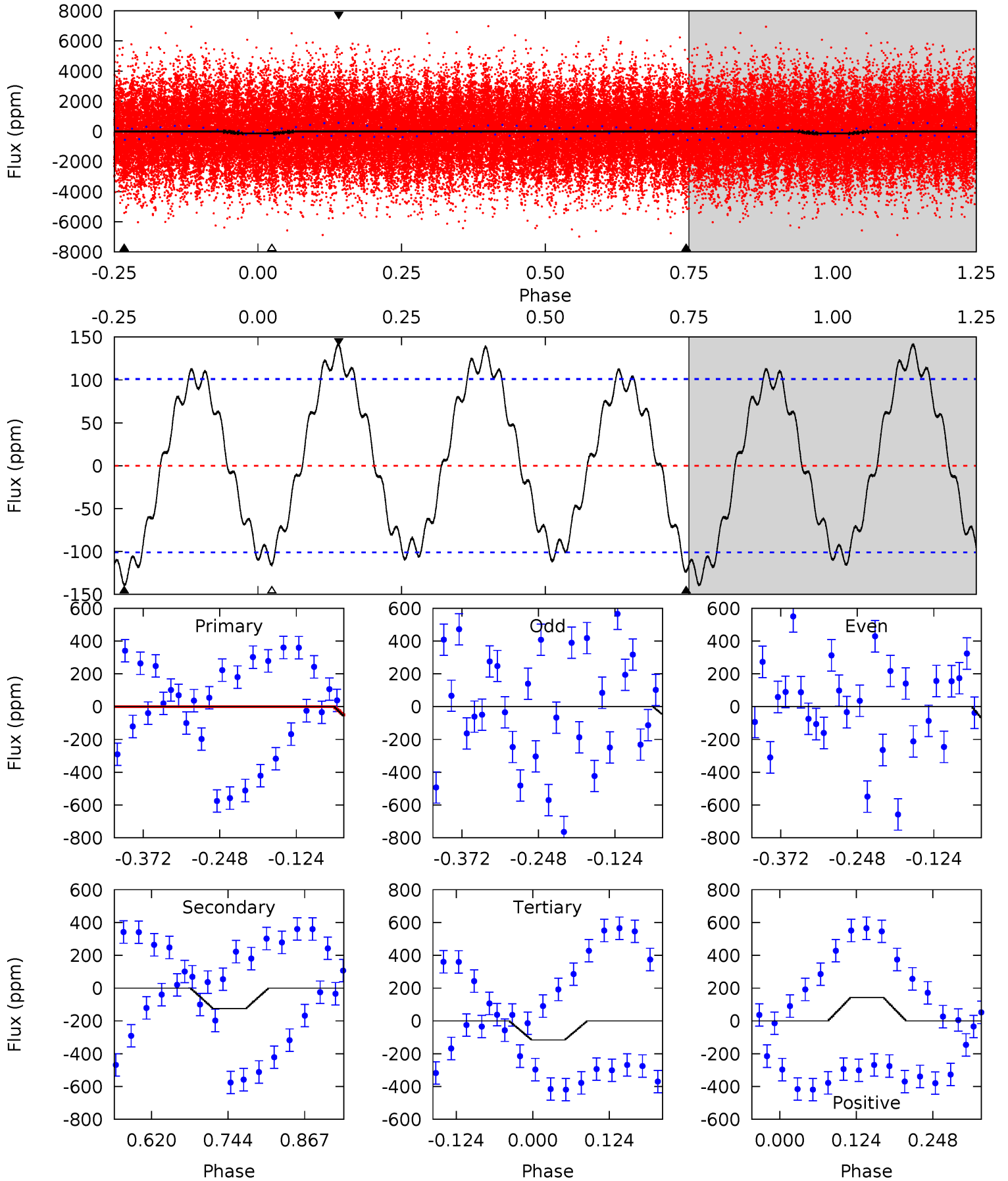
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	9.99	0	0	4.50	1.50	7.49	12.8	12.8	9.99	9.99	1.26	1.00	0.51	2.61



Alt Model-Shift Uniqueness Test

005196787-01, P = 0.555459 Days, E = 131.094974 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.25	5.58	5.21	6.36	4.52	1.54	3.50	1.05	-0.11	0.38	-0.78	1.11	1.09	0.50	0.70



Stellar Parameters For KIC 005196787

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7324^{+230}_{-307}	$4.240^{+0.105}_{-0.210}$	$-0.240^{+0.250}_{-0.350}$	$1.481^{+0.500}_{-0.231}$	$1.397^{+0.223}_{-0.203}$	$0.605^{+0.307}_{-0.343}$
	+3%/-4%	+2%/-5%	+104%/-146%	+34%/-16%	+16%/-15%	+51%/-57%
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 005196787-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-90 ± 9	$2.05^{+0.56}_{-0.56}$	4583^{+371}_{-289}	6130^{+1230}_{-757}	$2.531^{+2.271}_{-1.014}$
Alt.	-125 ± 22	$1.97^{+0.58}_{-0.57}$	4571^{+376}_{-291}	6875^{+1522}_{-876}	$3.877^{+3.587}_{-1.655}$

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 $A_{obs} \gg 1.0$

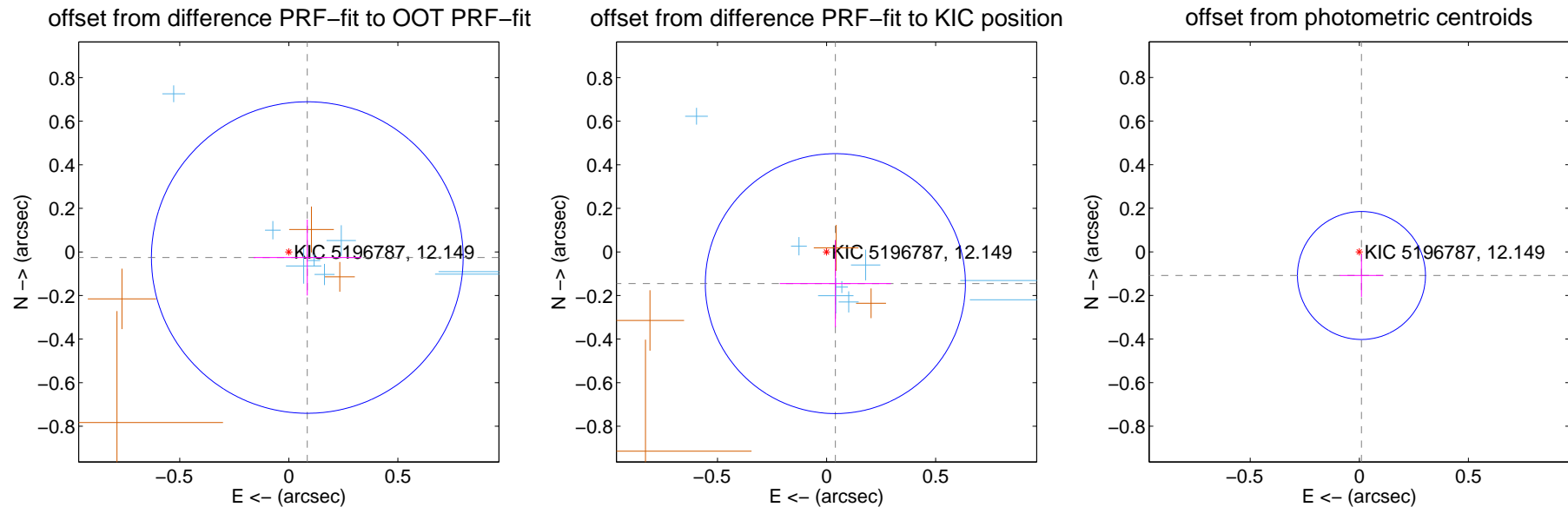
DV Centroid Data

Supplemental centroid analysis for 005196787-01. Kepler magnitude: 12.15. Transit SNR 12.48

There are 8 quarters with good PRF difference image offsets

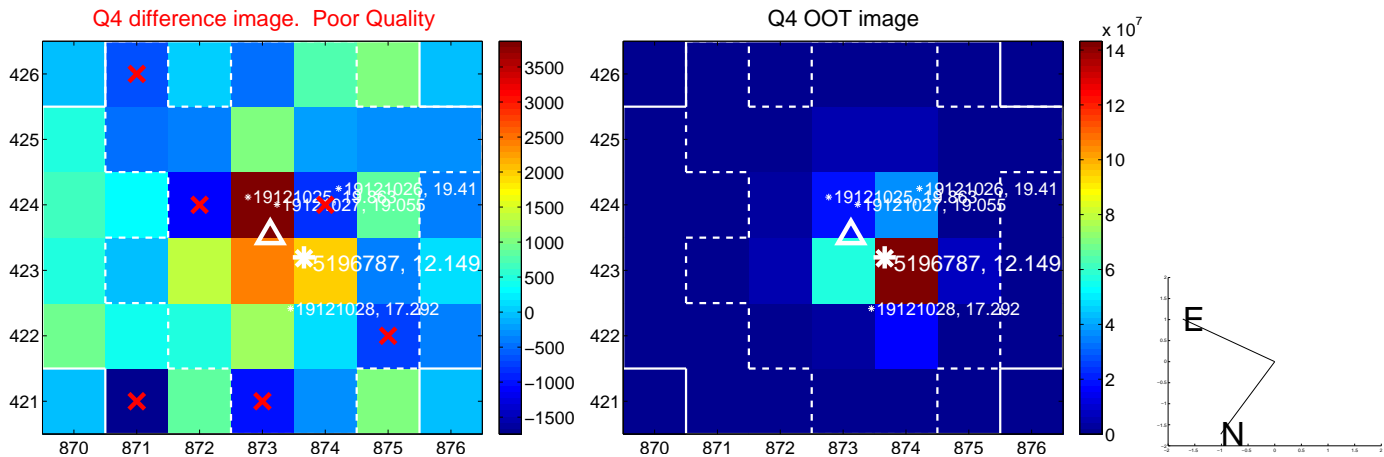
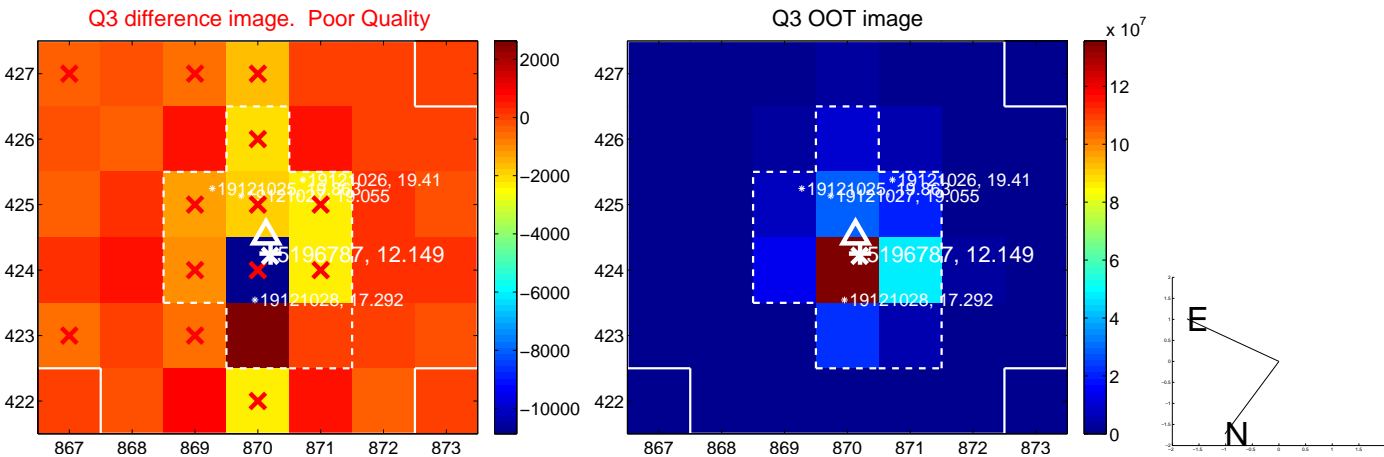
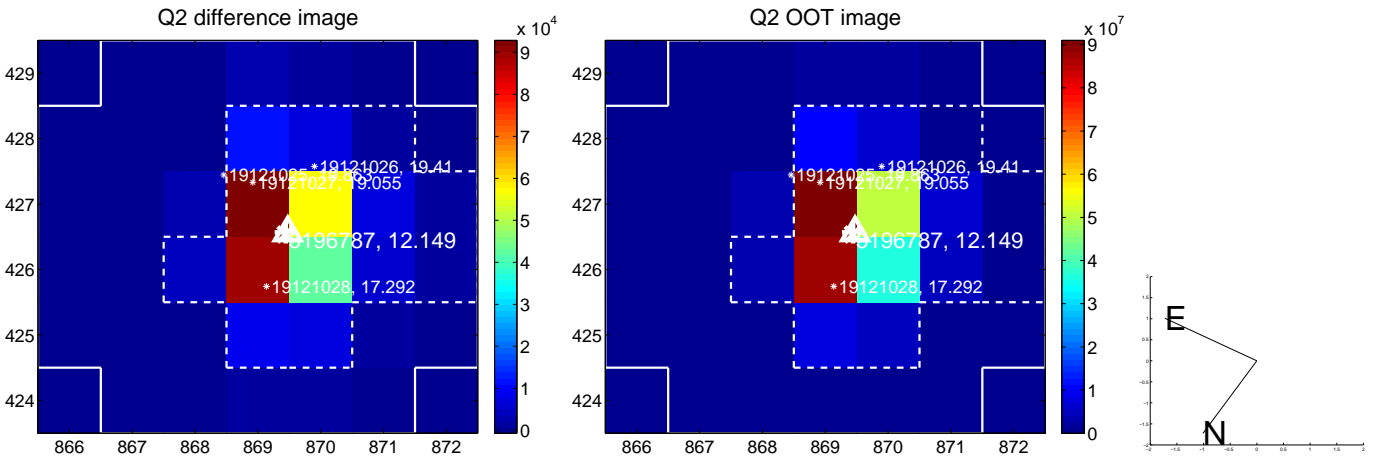
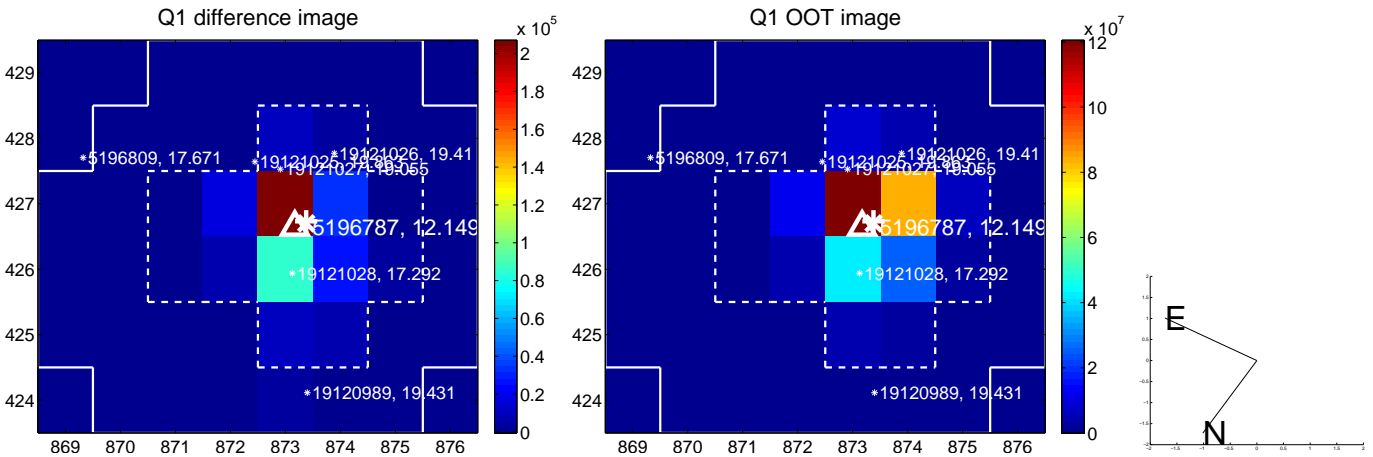
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.089 ± 0.238	0.37	-0.085 ± 0.247	-0.026 ± 0.174
PRF-fit source offset from KIC position	0.151 ± 0.199	0.76	-0.040 ± 0.255	-0.145 ± 0.199
photometric centroid source offset	0.11 ± 0.10	1.11	-0.01 ± 0.10	-0.11 ± 0.10

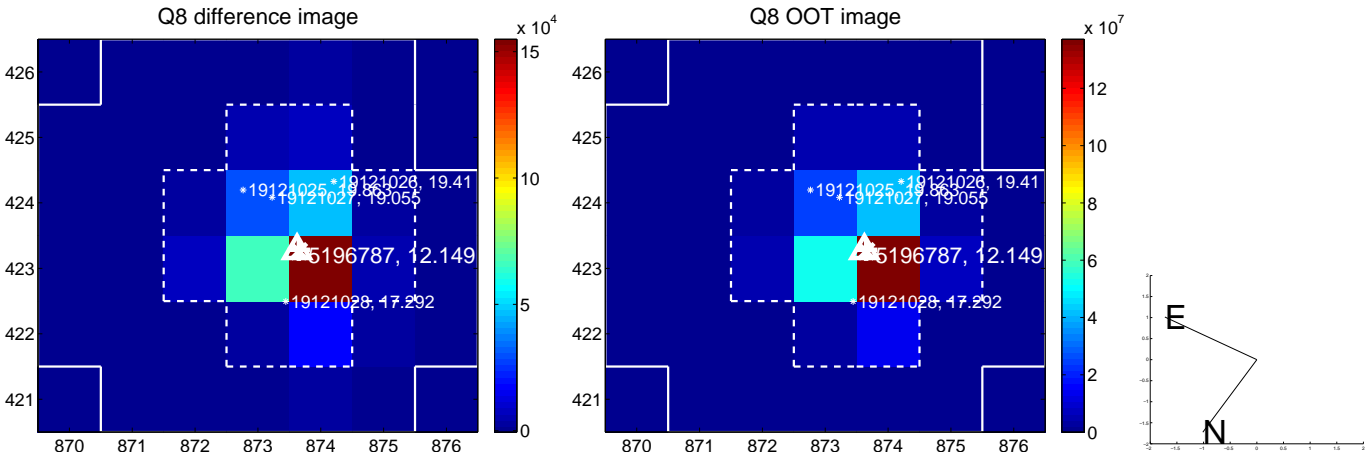
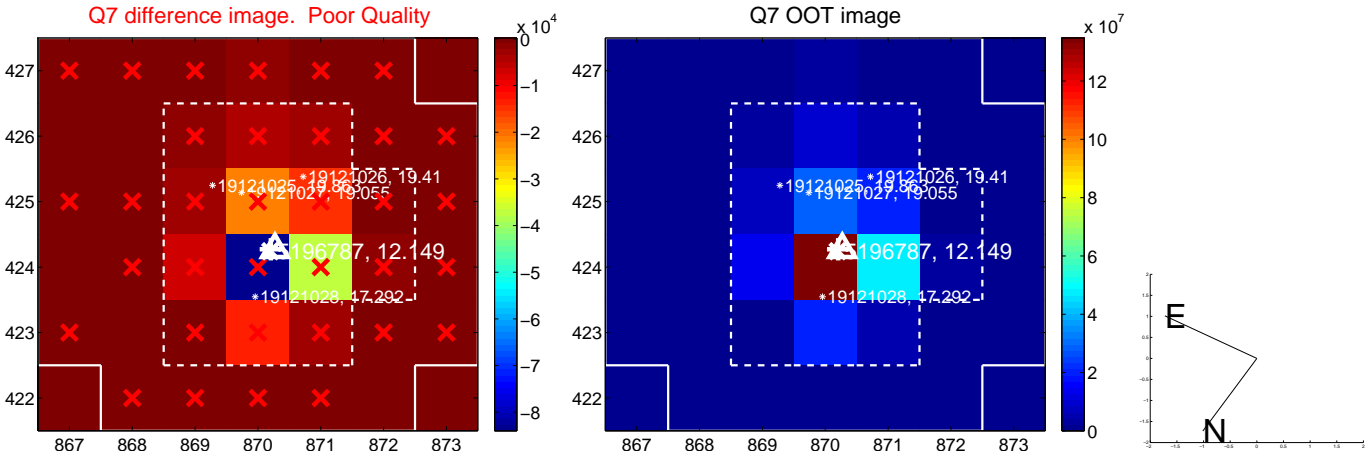
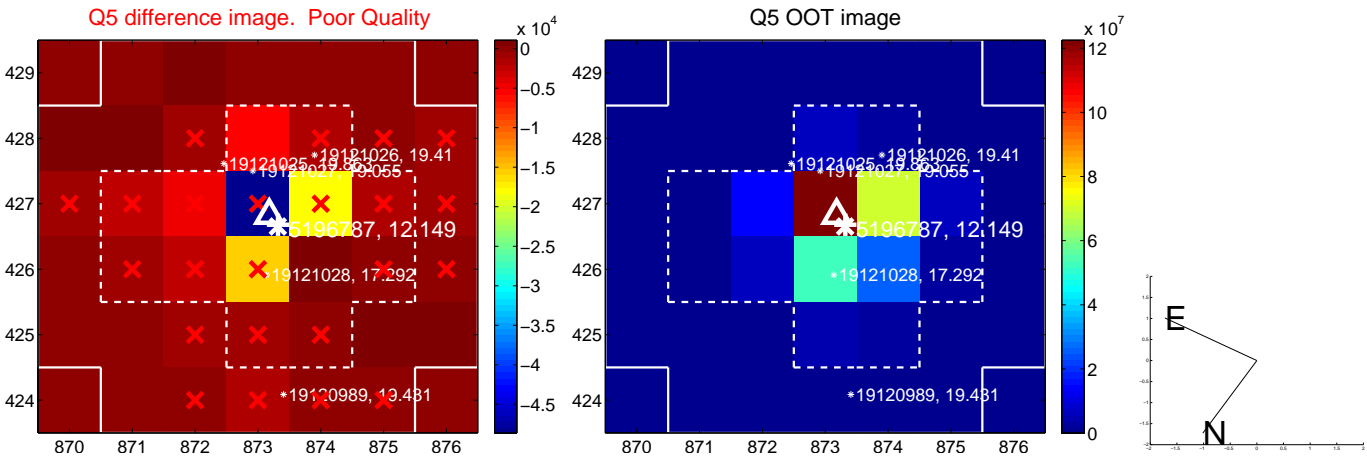


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

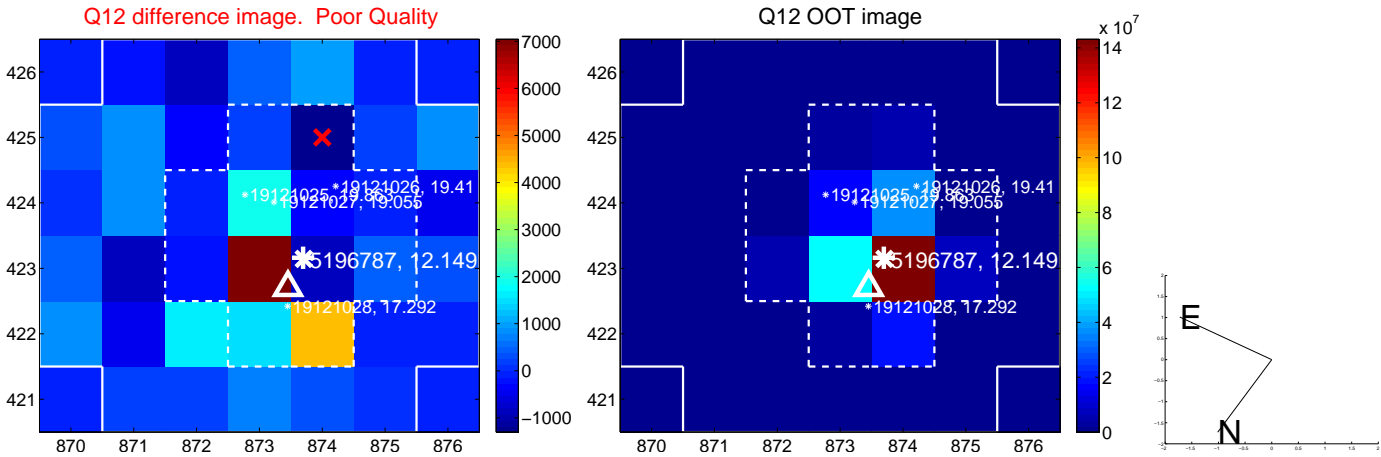
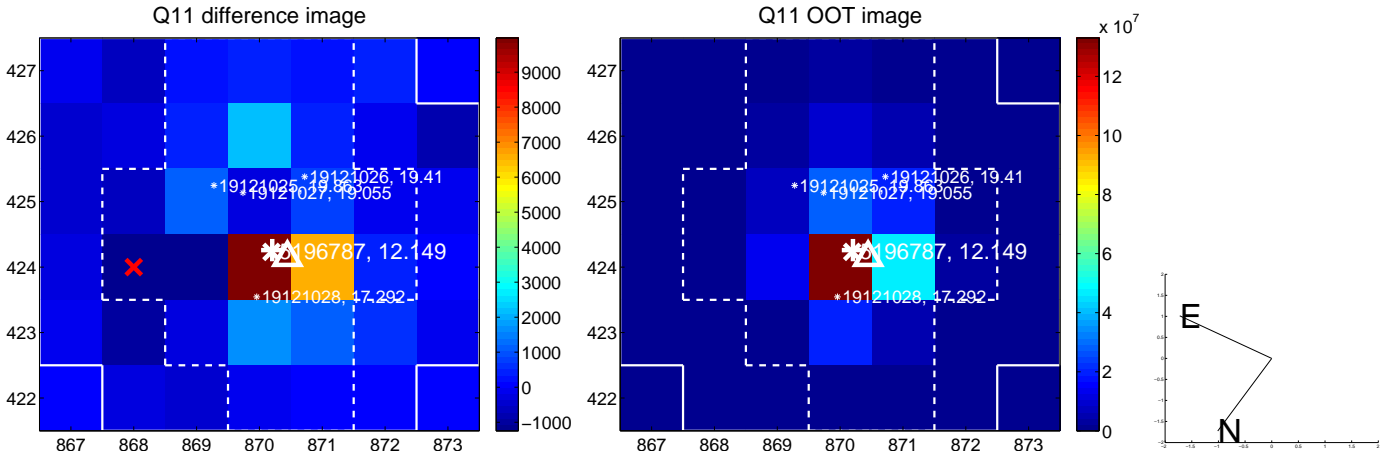
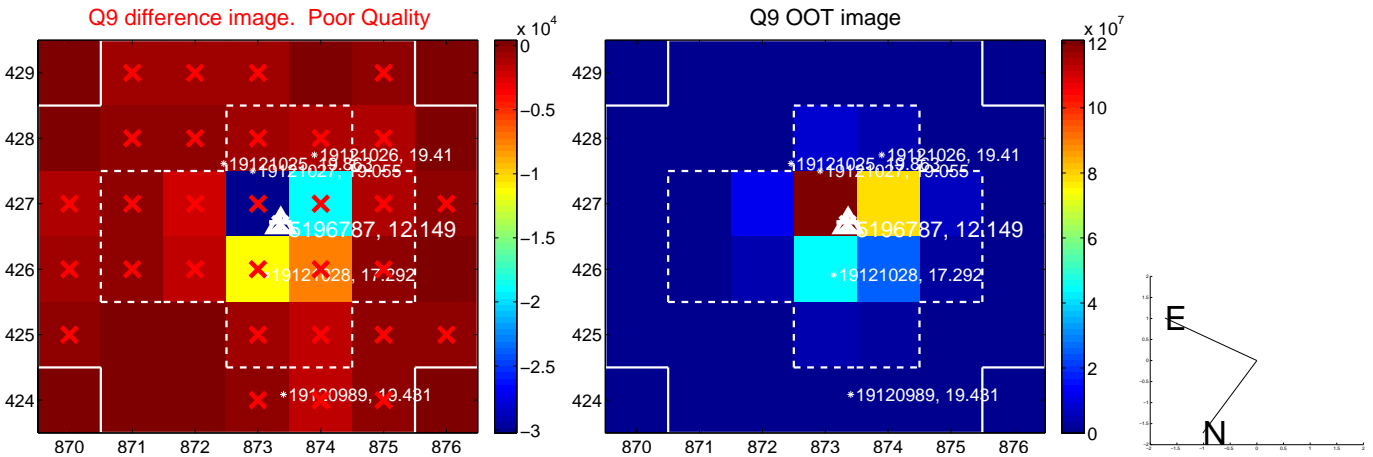
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



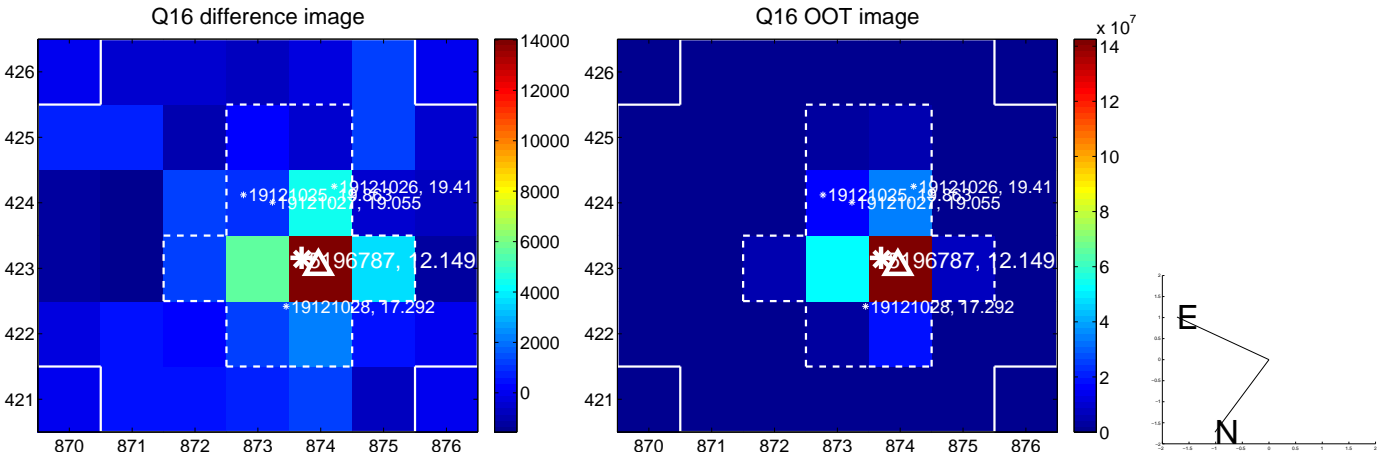
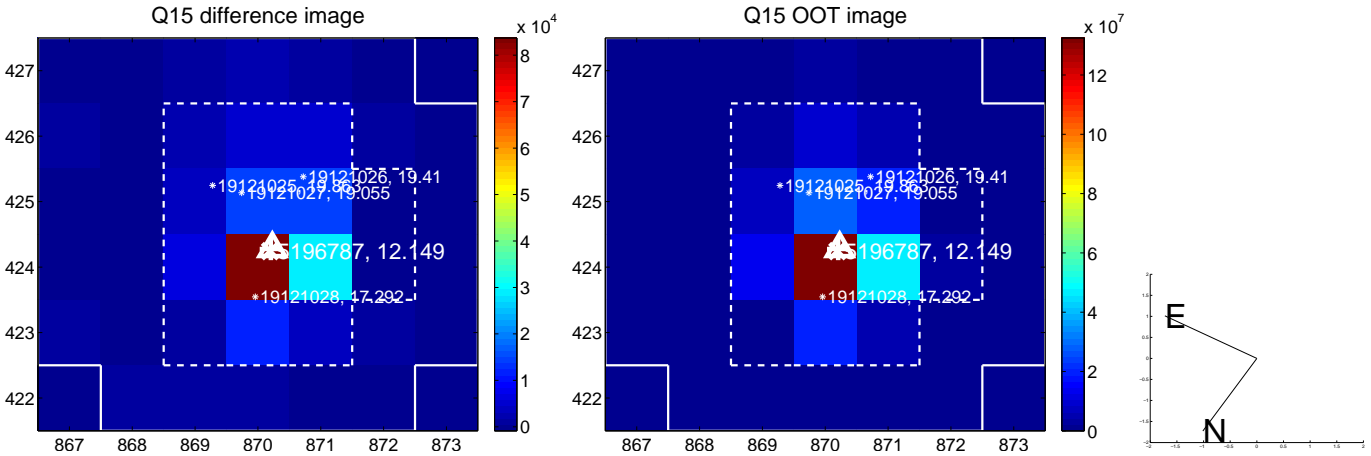
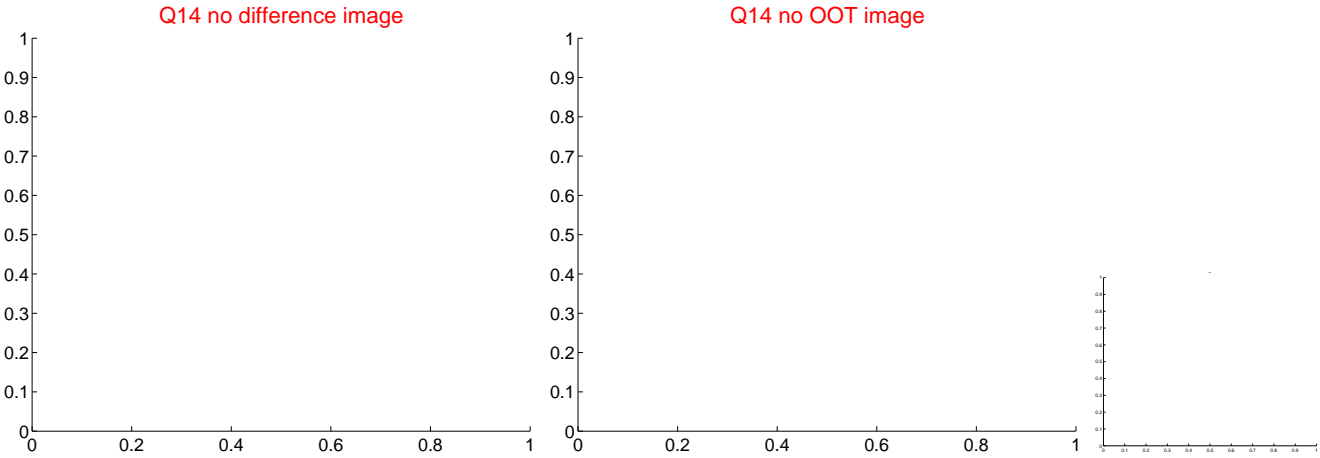
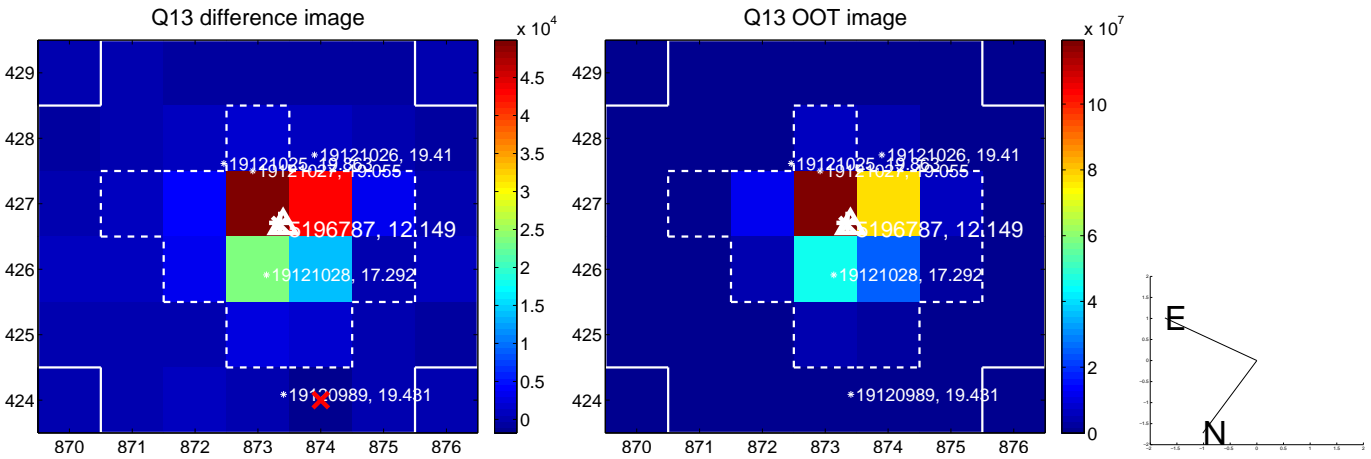
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



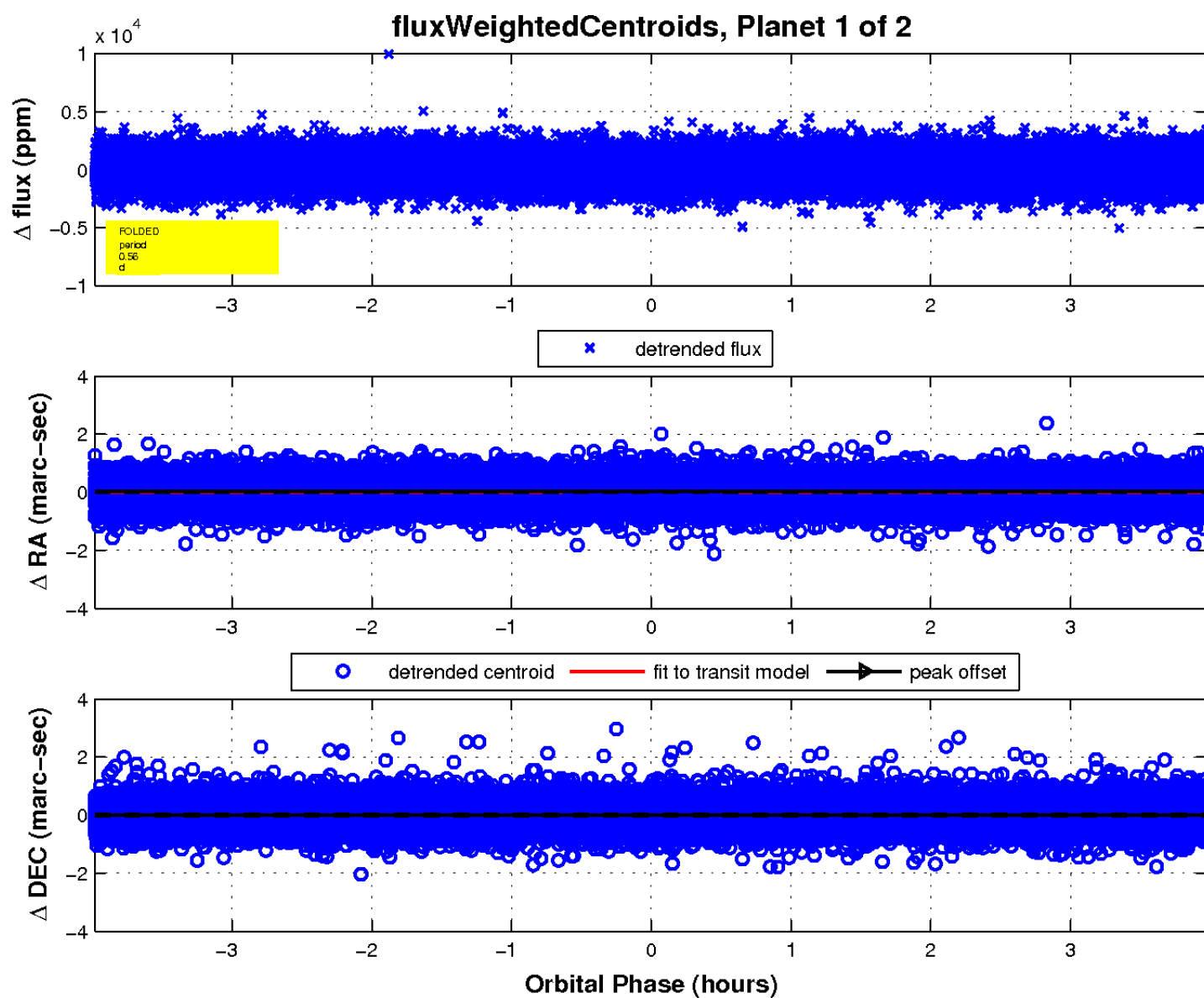
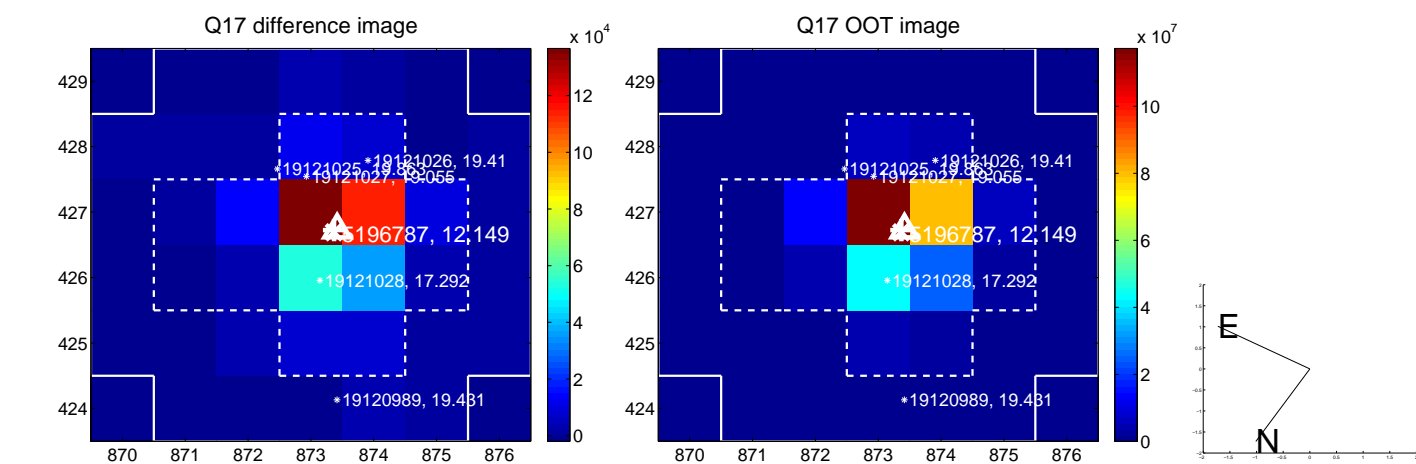
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

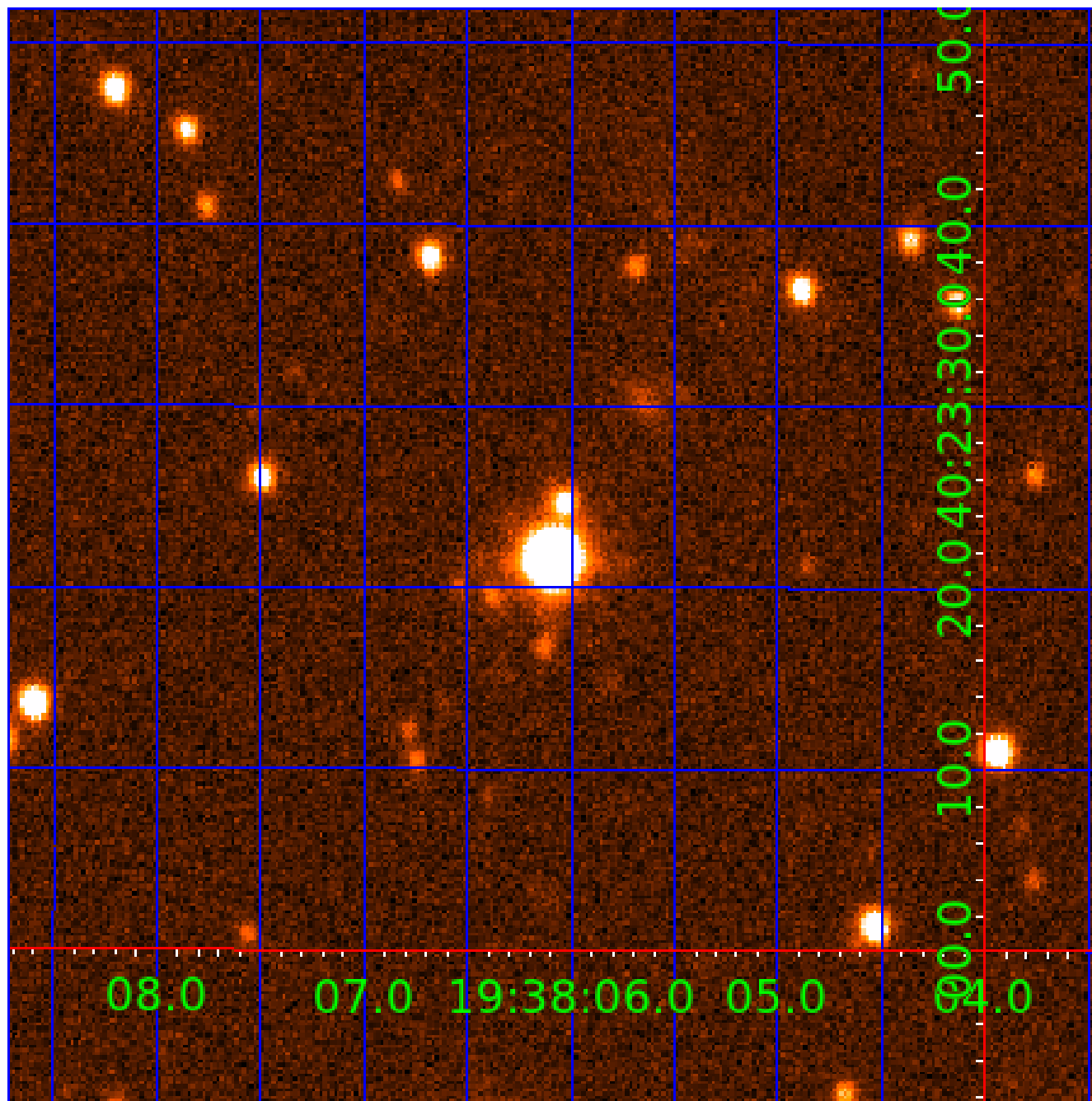


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



UKIRT Image

Declination



KIC 005196787

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})
005196787-01	OBS	No	0.555470	131.652581	157.5	1.327	12.5	12.5	1.48	7324	1.99	25944.38
005196787-02	OBS	No	0.827345	132.205689	227.2	7.137	11.1	19.2	1.48	7324	2.29	15252.55

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005196787-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
005196787-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT

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

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

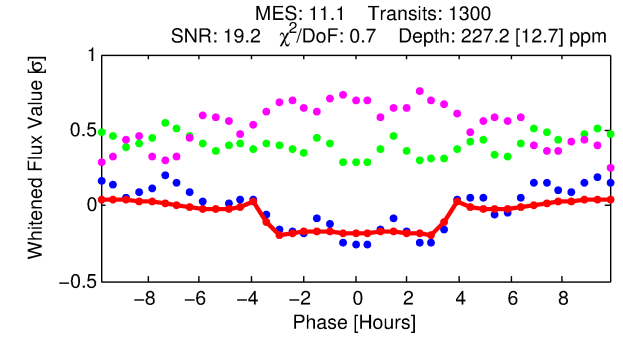
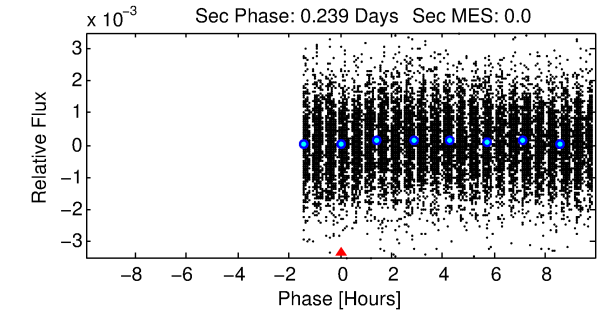
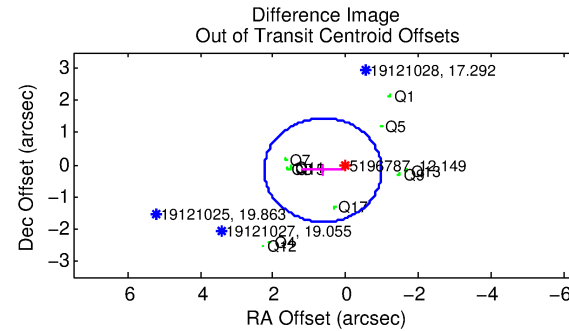
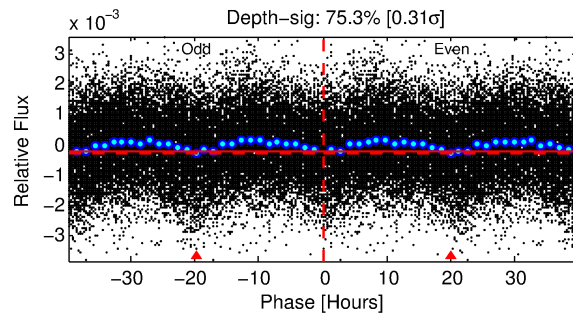
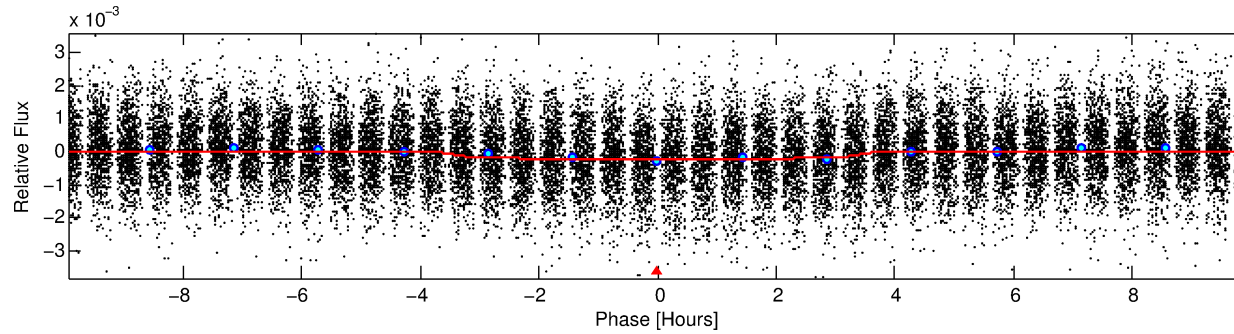
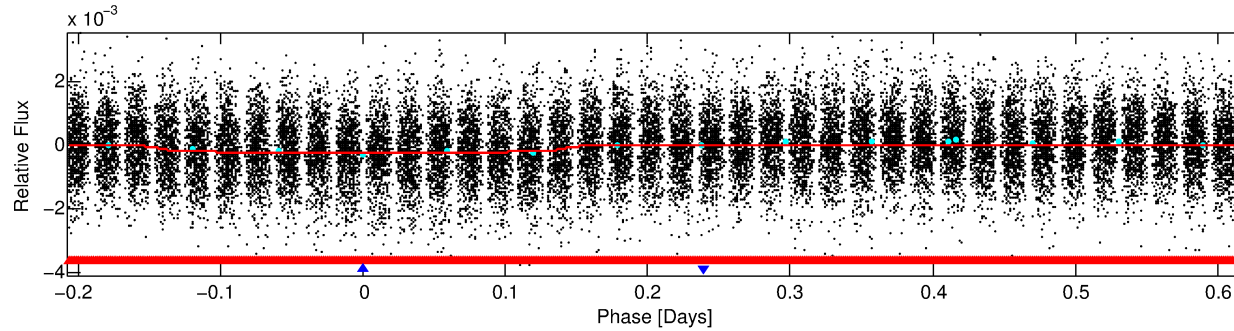
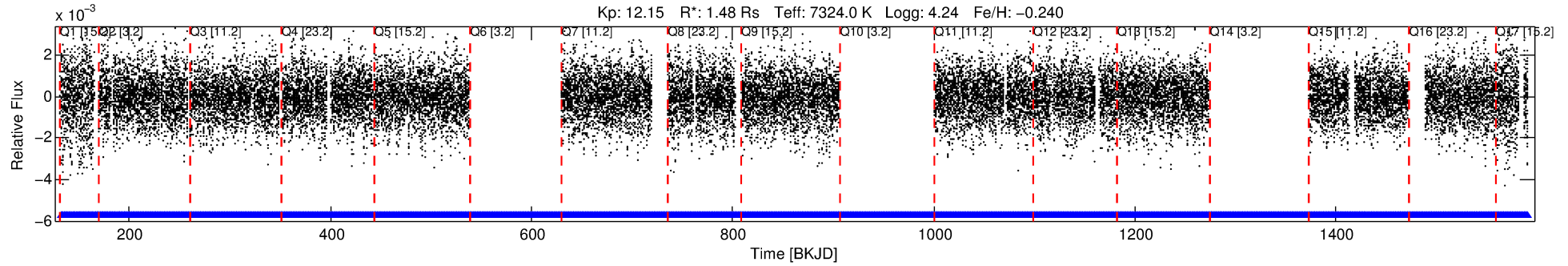
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005196787-02

No Significant Match Found

DV One-Page Summary

KIC: 5196787 Candidate: 2 of 2 Period: 0.827 d



DV Fit Results:

Period = 0.82734 [0.00001] d
Epoch = 132.2057 [0.0023] BKJD
Rp/R* = 0.0142 [0.0042]
a/R* = 1.11 [0.37]
b = 0.37 [4.27]
Seff = 15252.55 [6519.24]
Teq = 2834 [303] K
Rp = 2.29 [1.03] Re
a = 0.0193 [0.0053] AU
Ag = N/A
Teffp = N/A

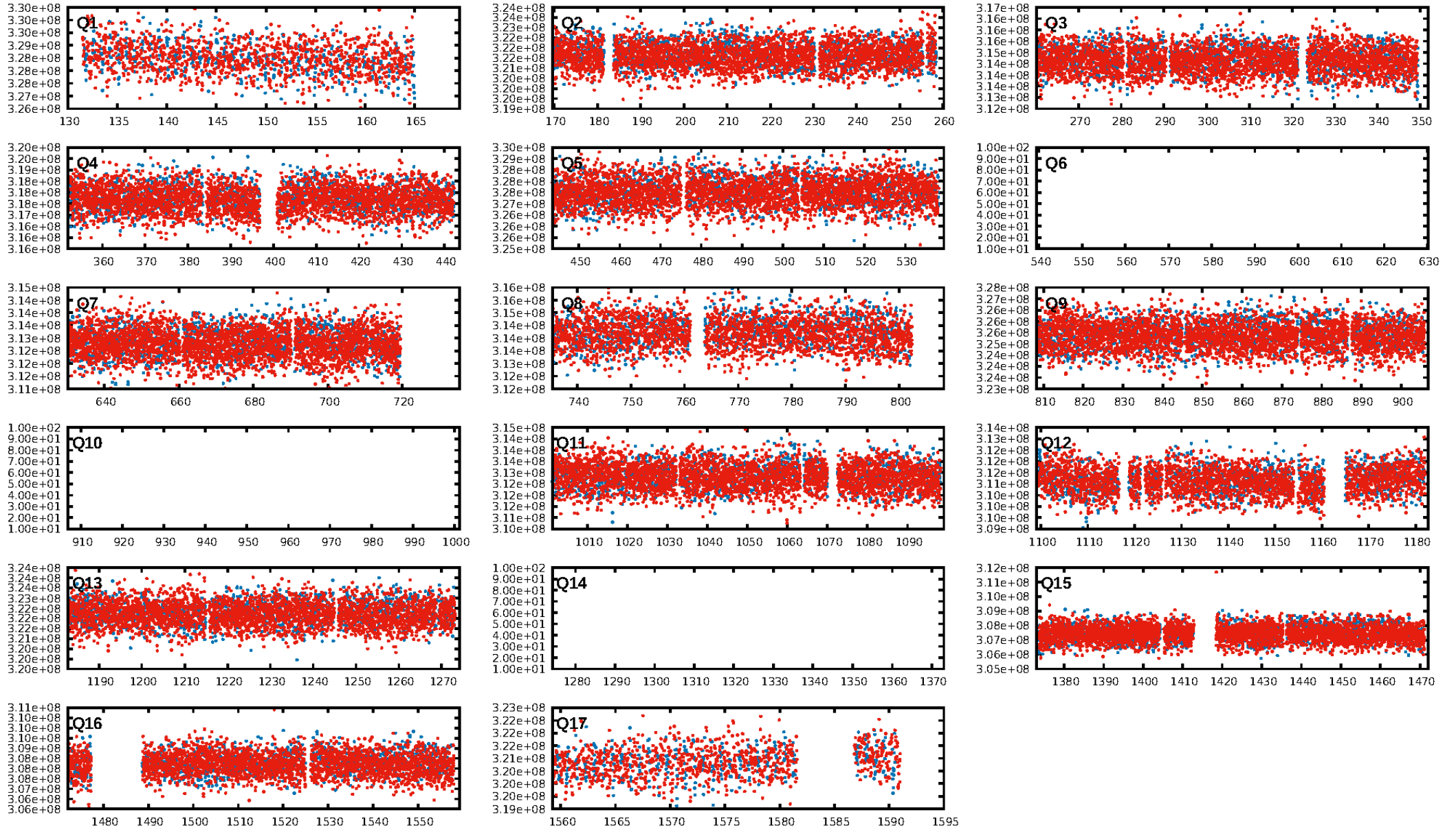
DV Diagnostic Results:

ShortPeriod-sig: 63.1% [0.90 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1225/1225]
GhostDiagnostic-chr: 2.477
Centroid-sig: 45.7%
Centroid-so: 0.145 arcsec [3.69 σ]
OotOffset-rm: 0.653 arcsec [1.21 σ]
KicOffset-rm: 0.740 arcsec [1.43 σ]
OotOffset-st: 0/4/2/5 [11]
KicOffset-st: 0/4/2/5 [11]
DiffImageQuality-fgm: 1.00 [11/11]
DiffImageOverlap-fno: 0.00 [0/14]

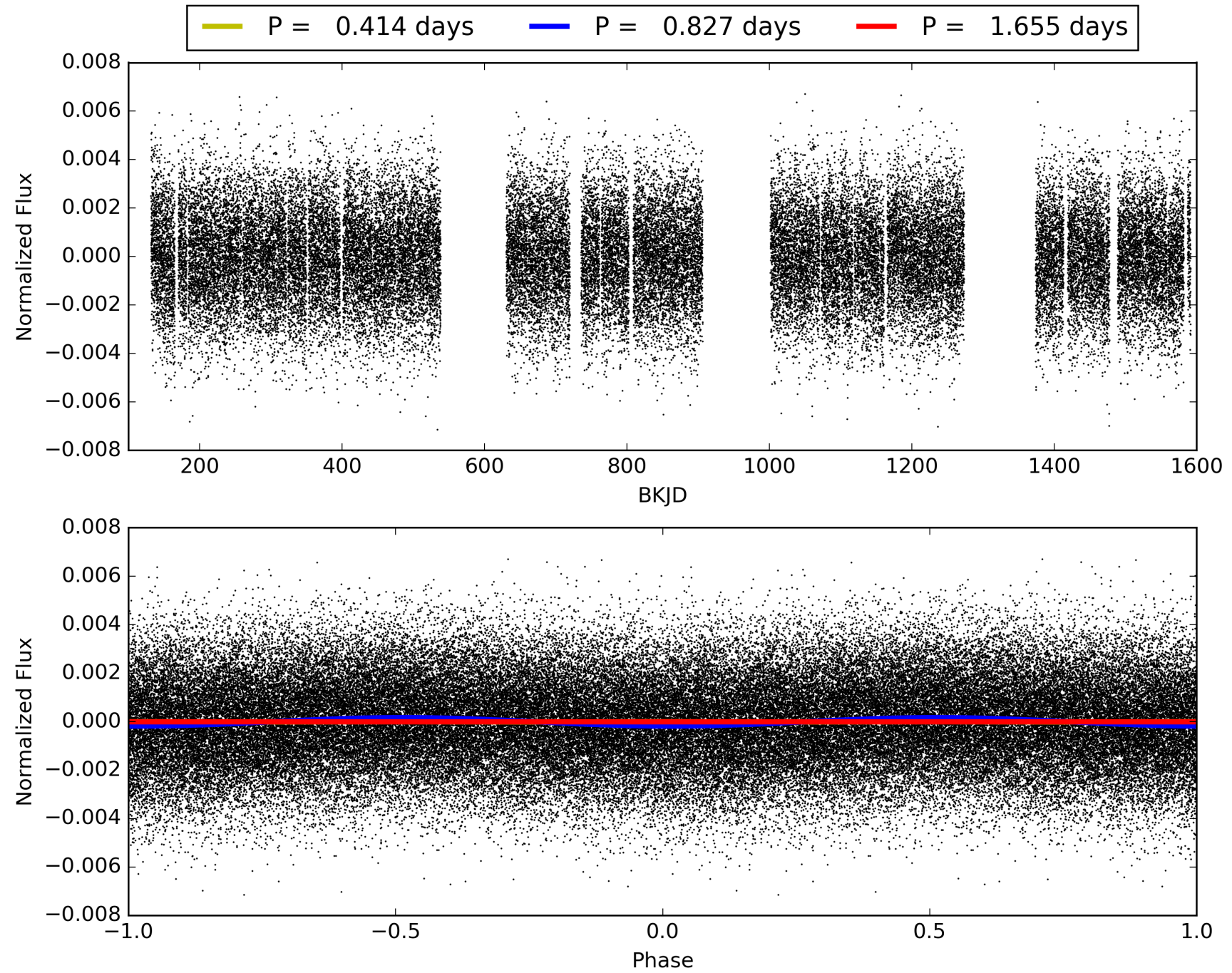
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:31:05 Z

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

TCE 005196787-02, PDC Light Curves

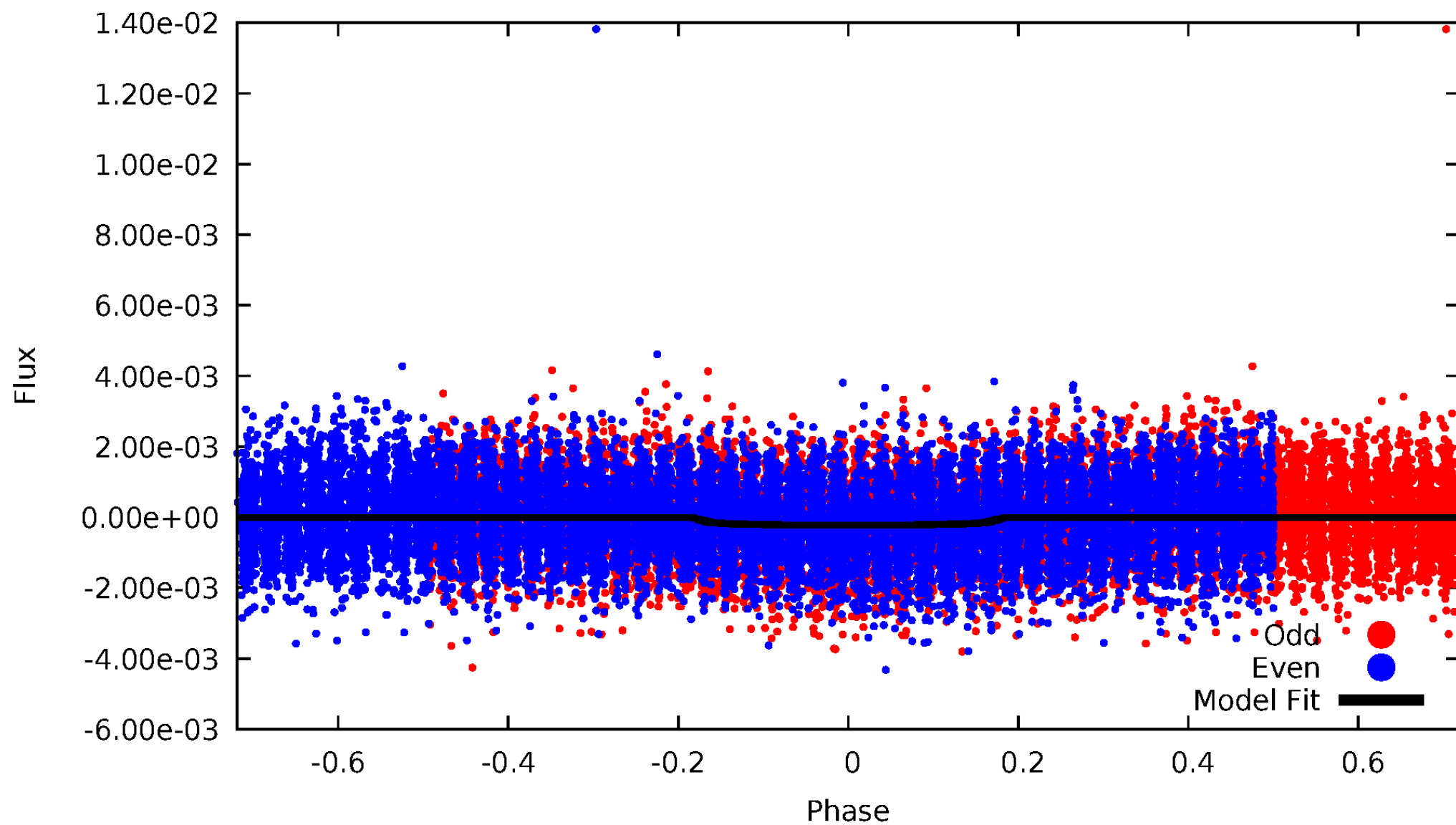


TCE 005196787-02



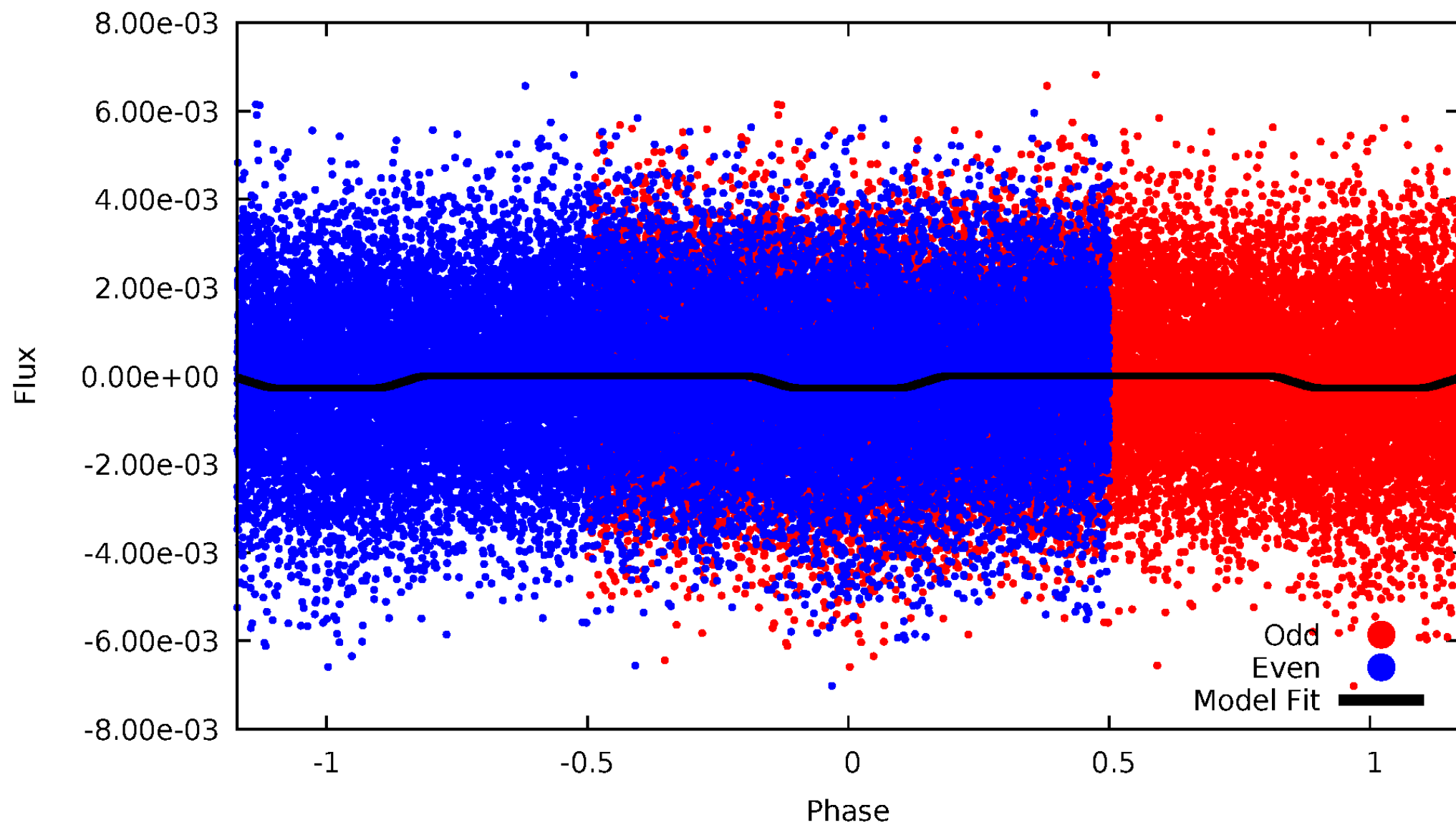
DV Odd/Even

TCE 005196787-02



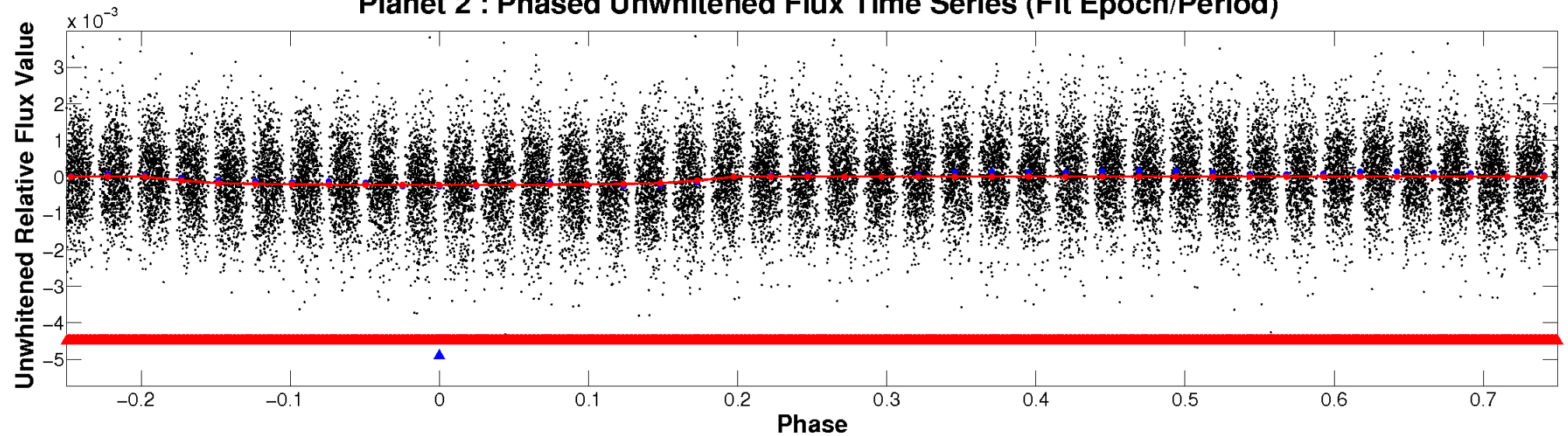
ALT Odd/Even

TCE 005196787-02

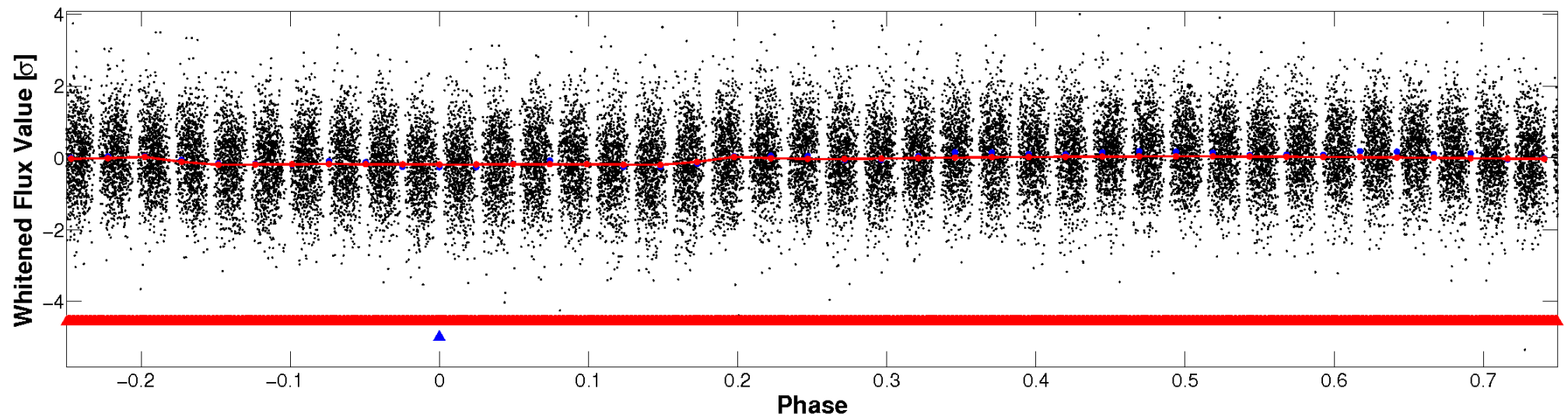


Non-Whitened Vs. Whitened Light Curve

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

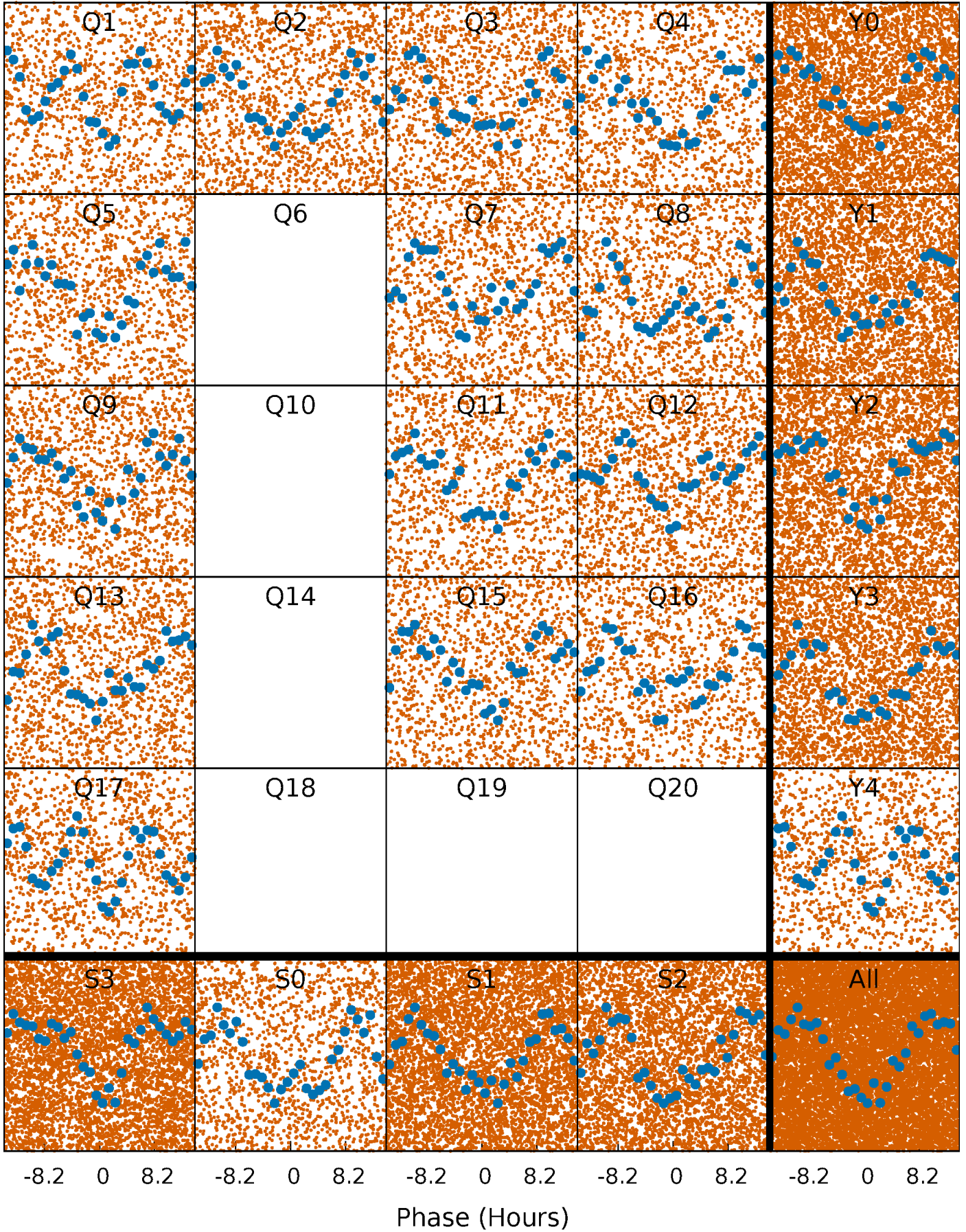


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



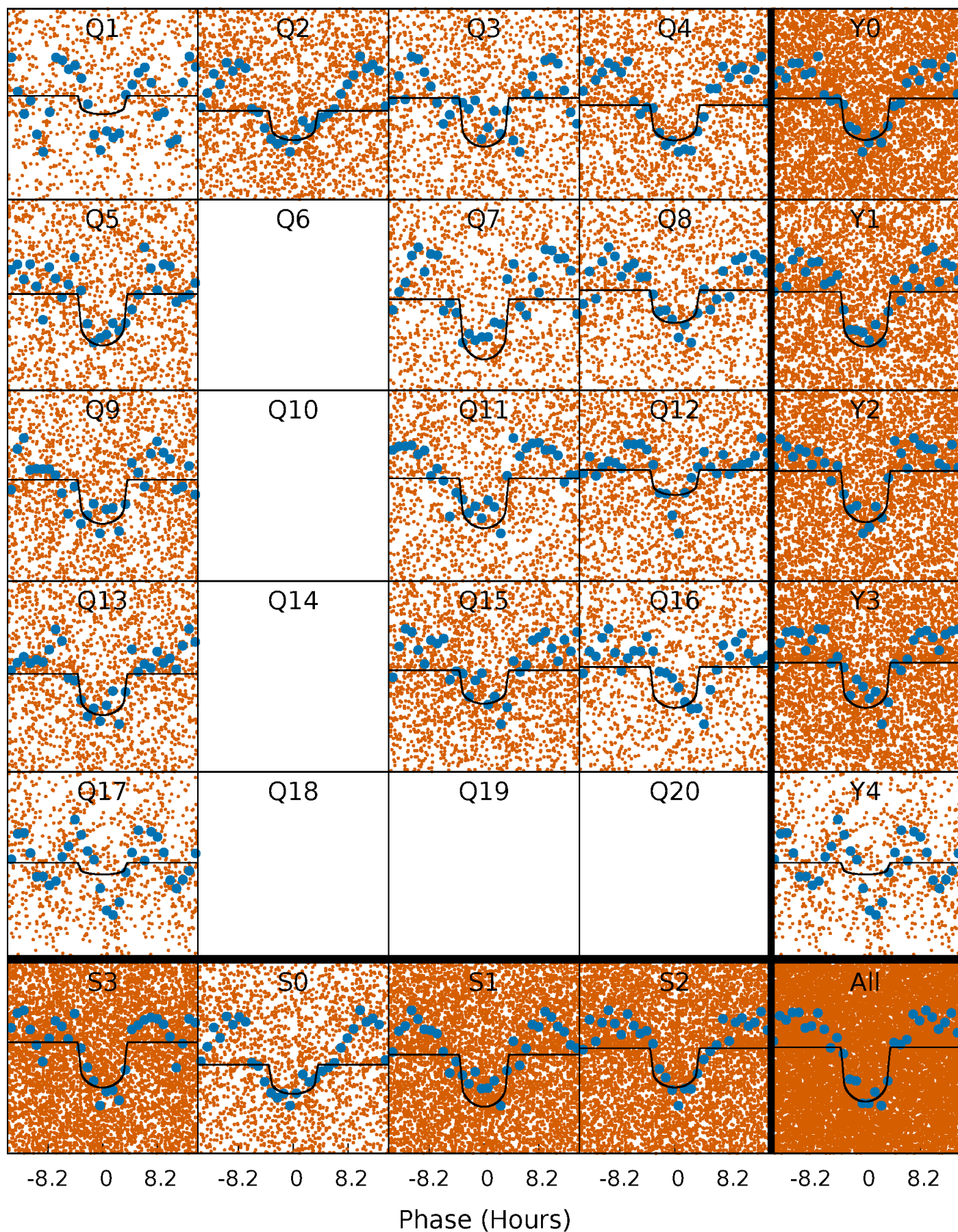
PDC Quarter-Phased Transit Curves

TCE 005196787-02 P= 0.827345 Days $T_0=132.205689$ (BKJD)



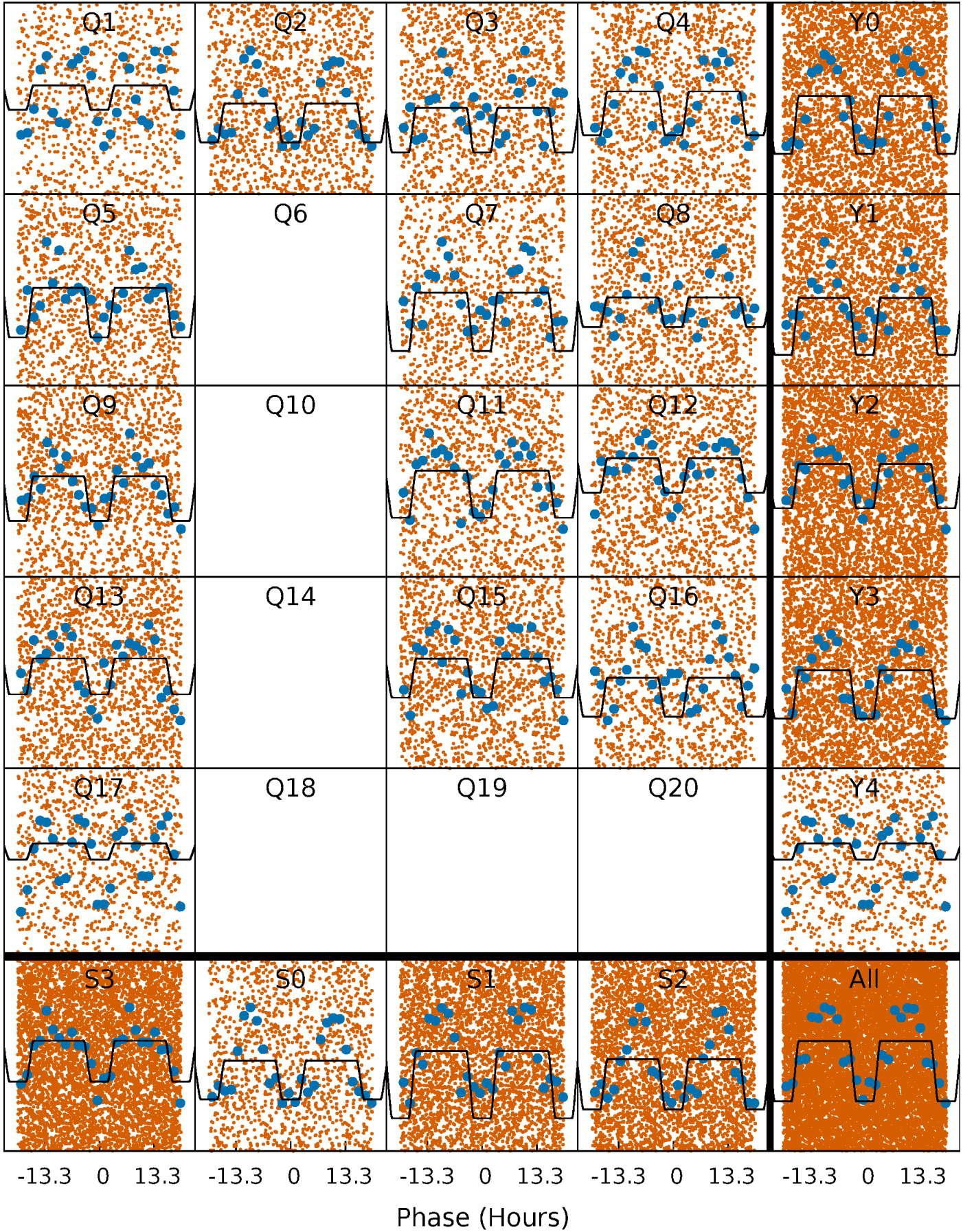
DV Quarter-Phased Transit Curves

TCE 005196787-02 P= 0.827345 Days $T_0=132.205689$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

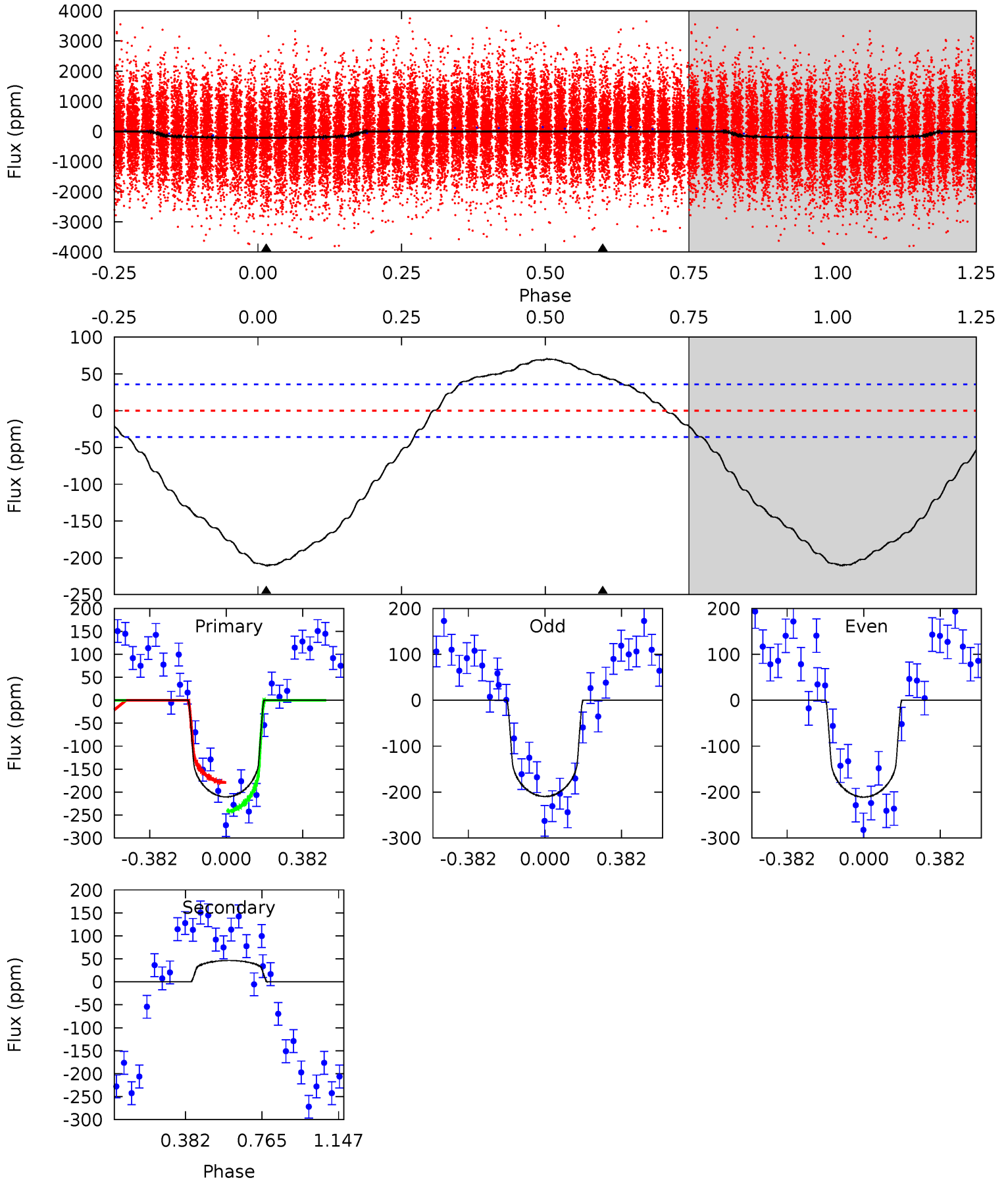
TCE 005196787-02 P= 0.827378 Days $T_0=132.175451$ (BKJD)



DV Model-Shift Uniqueness Test

005196787-02, P = 0.827345 Days, E = 131.378344 Days

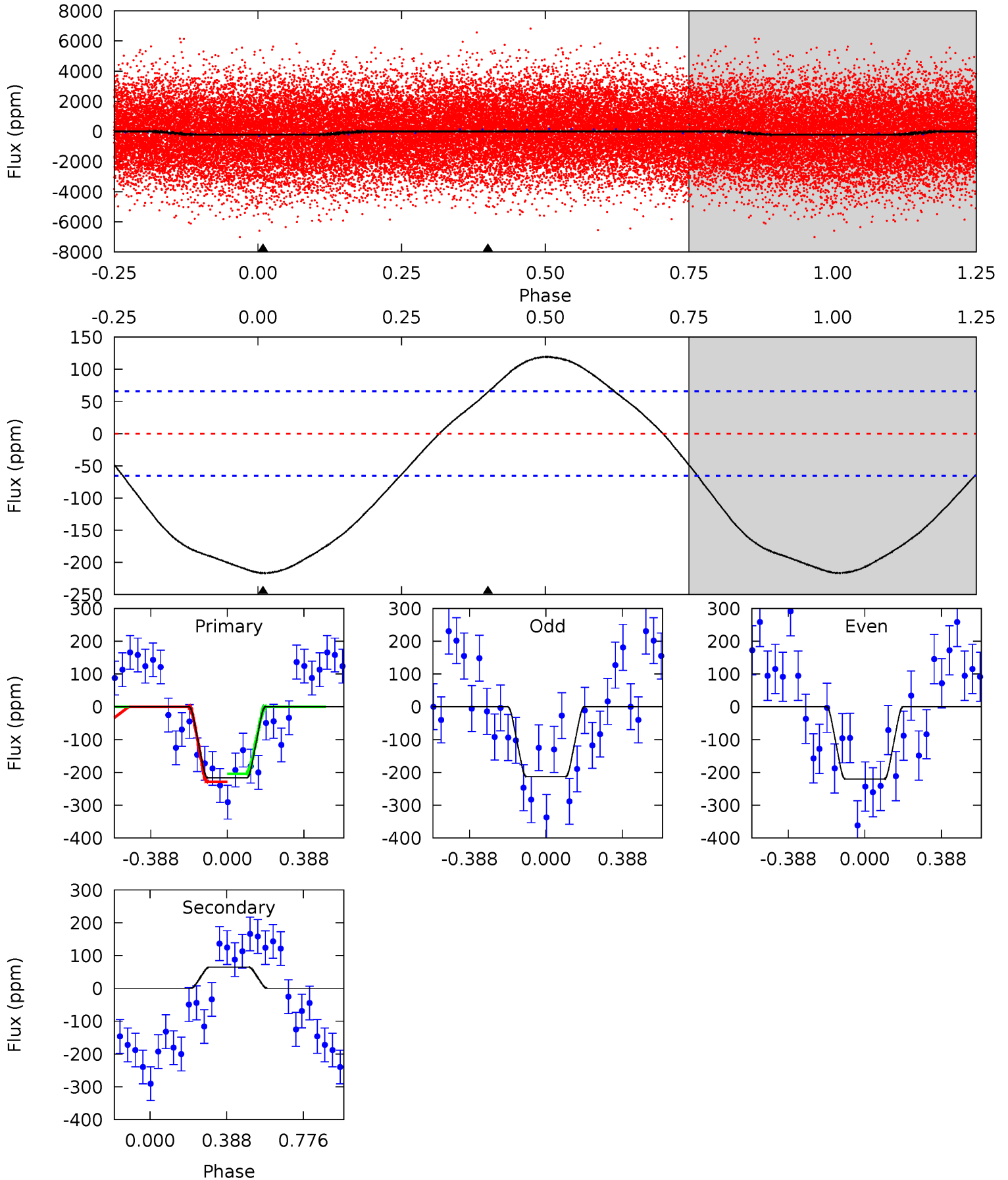
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	-5.54	0	0	4.27	0.87	3.23	25.1	25.1	-5.54	-5.54	0.08	1.07	0.25	3.68



Alt Model-Shift Uniqueness Test

005196787-02, P = 0.827378 Days, E = 131.348073 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	-4.20	0	0	4.27	0.86	1.81	14.1	14.1	-4.20	-4.20	0.23	1.44	0.36	0.78



Stellar Parameters For KIC 005196787

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7324^{+230}_{-307}	$4.240^{+0.105}_{-0.210}$	$-0.240^{+0.250}_{-0.350}$	$1.481^{+0.500}_{-0.231}$	$1.397^{+0.223}_{-0.203}$	$0.605^{+0.307}_{-0.343}$
	+3%/-4%	+2%/-5%	+104%/-146%	+34%/-16%	+16%/-15%	+51%/-57%
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 005196787-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	46 ± 8	$2.40^{+0.83}_{-0.71}$	4005^{+313}_{-223}	-5234^{+490}_{-883}	$-1.594^{+0.746}_{-1.788}$
Alt.	65 ± 15	$2.79^{+0.82}_{-0.80}$	4009^{+347}_{-248}	-5256^{+480}_{-800}	$-1.628^{+0.719}_{-1.781}$

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 $A_{obs} \gg 1.0$

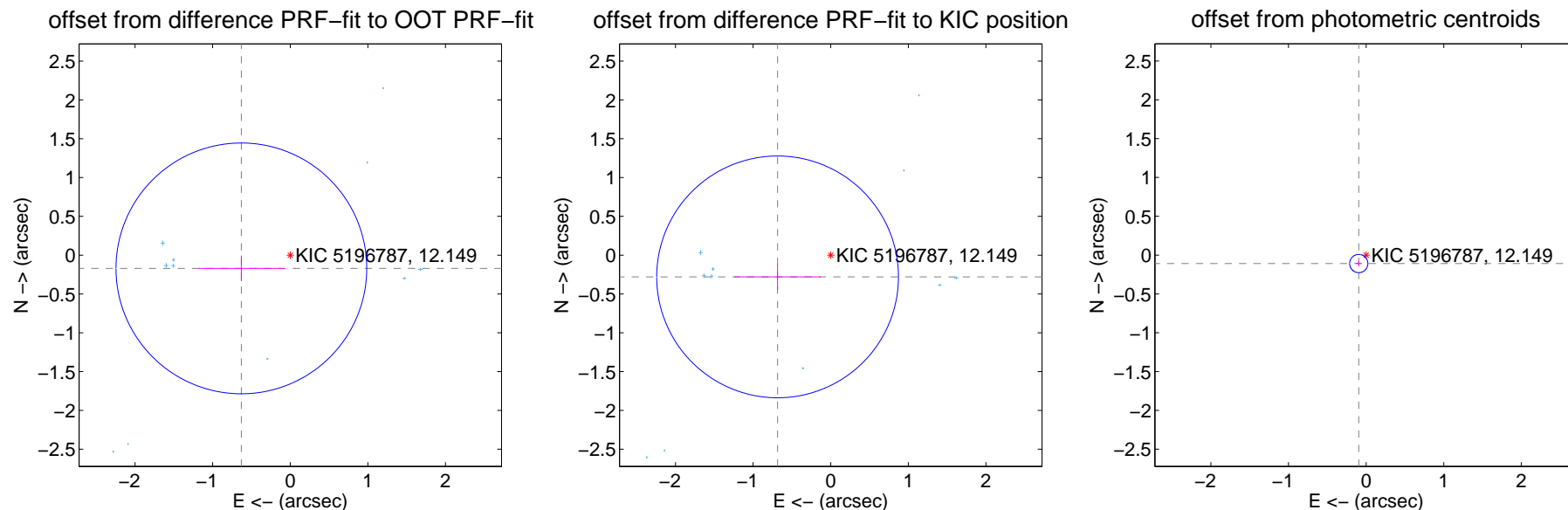
DV Centroid Data

Supplemental centroid analysis for 005196787-02. Kepler magnitude: 12.15. Transit SNR 19.16

There are 11 quarters with good PRF difference image offsets

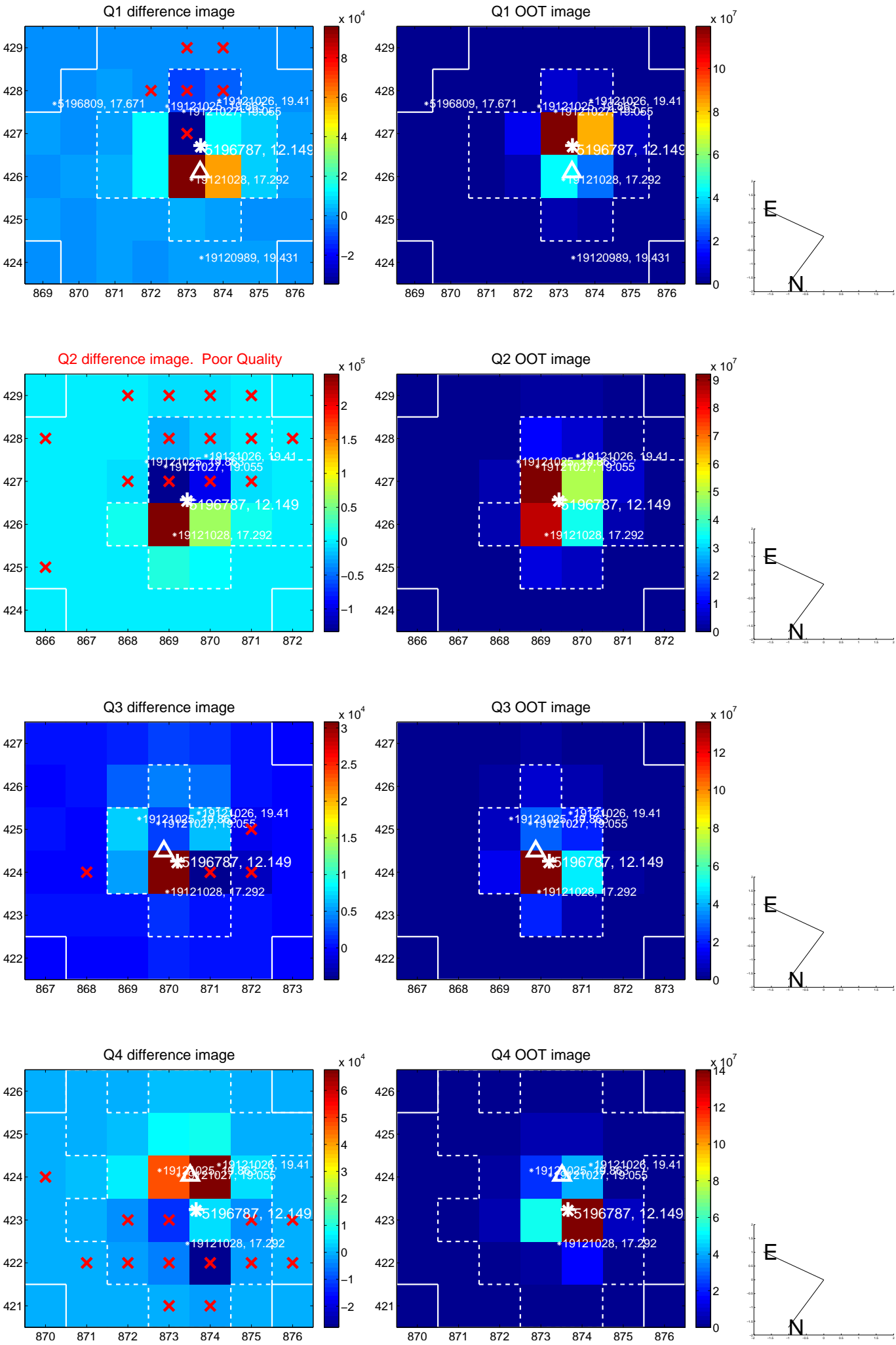
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.653 ± 0.539	1.21	0.630 ± 0.556	-0.171 ± 0.165
PRF-fit source offset from KIC position	0.740 ± 0.519	1.43	0.685 ± 0.557	-0.280 ± 0.164
photometric centroid source offset	0.14 ± 0.04	3.69	0.09 ± 0.04	-0.11 ± 0.04

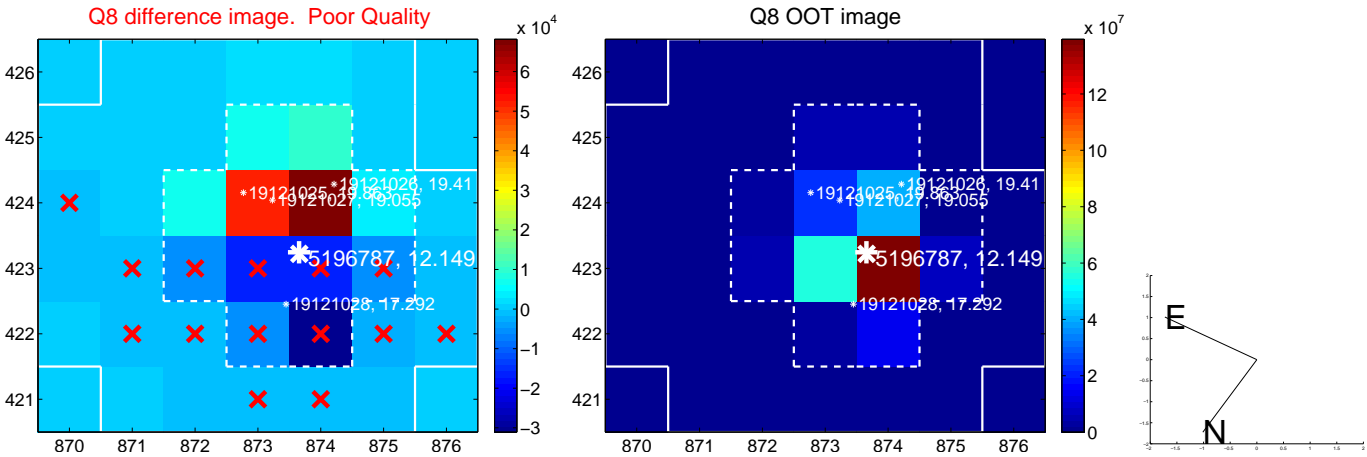
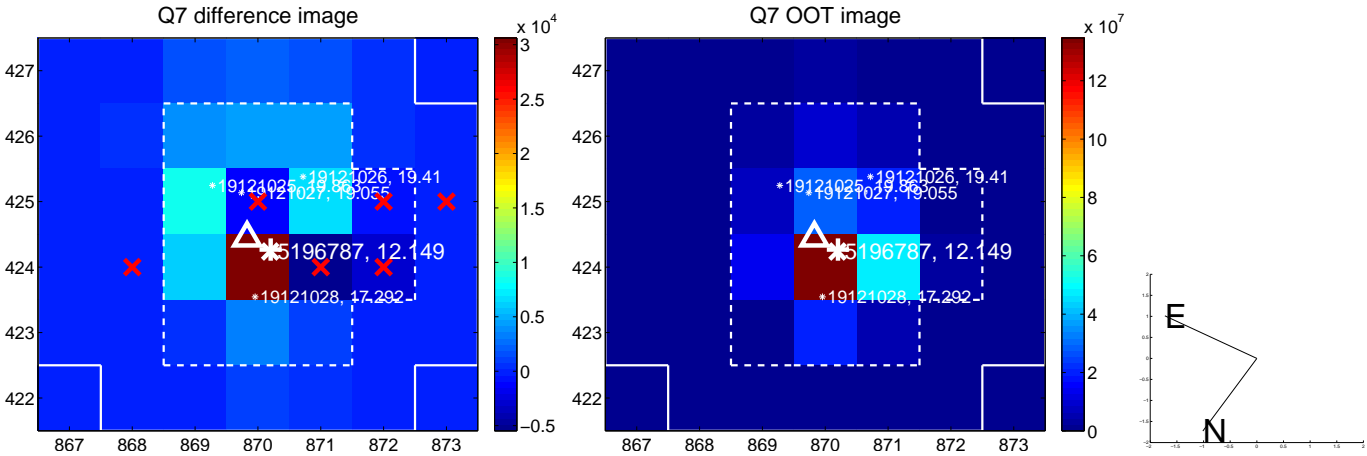
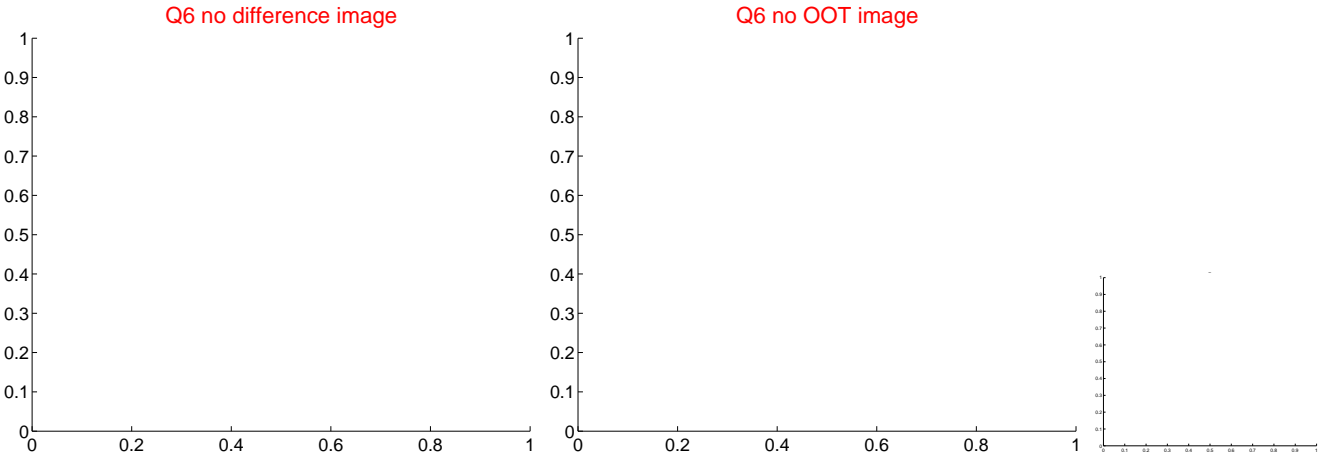
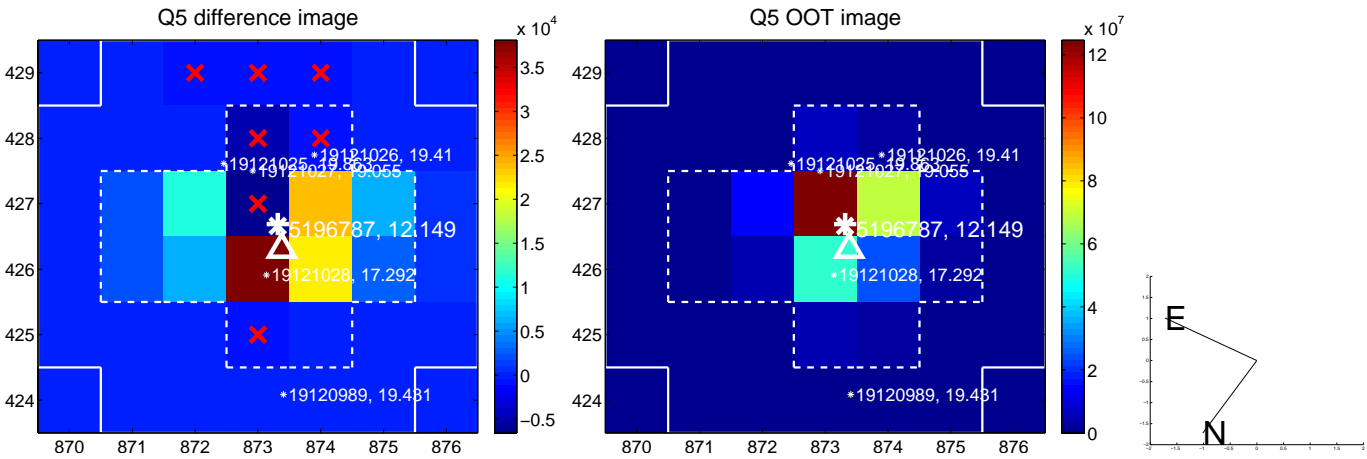


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

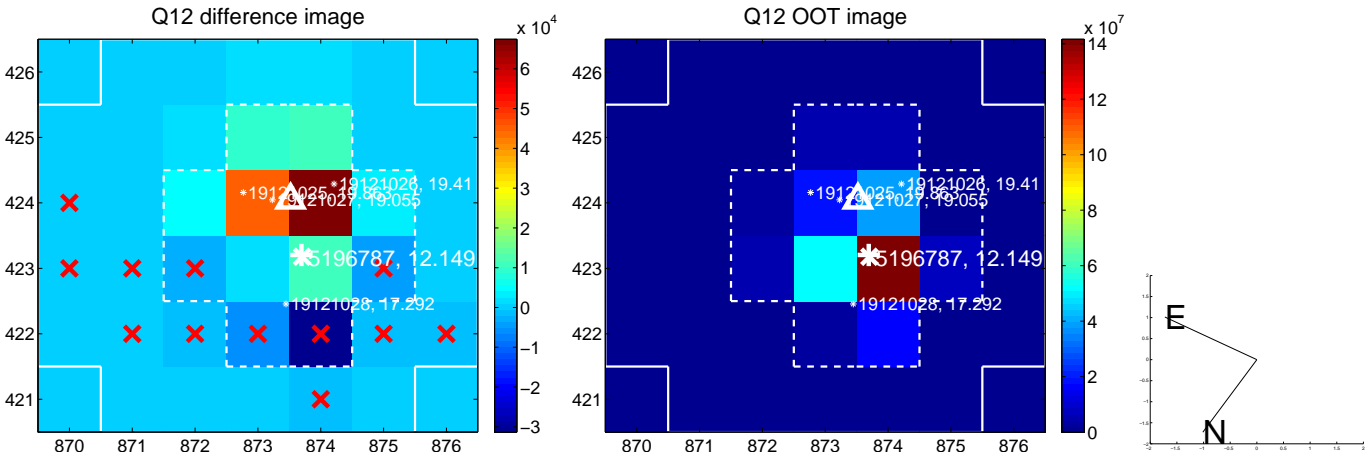
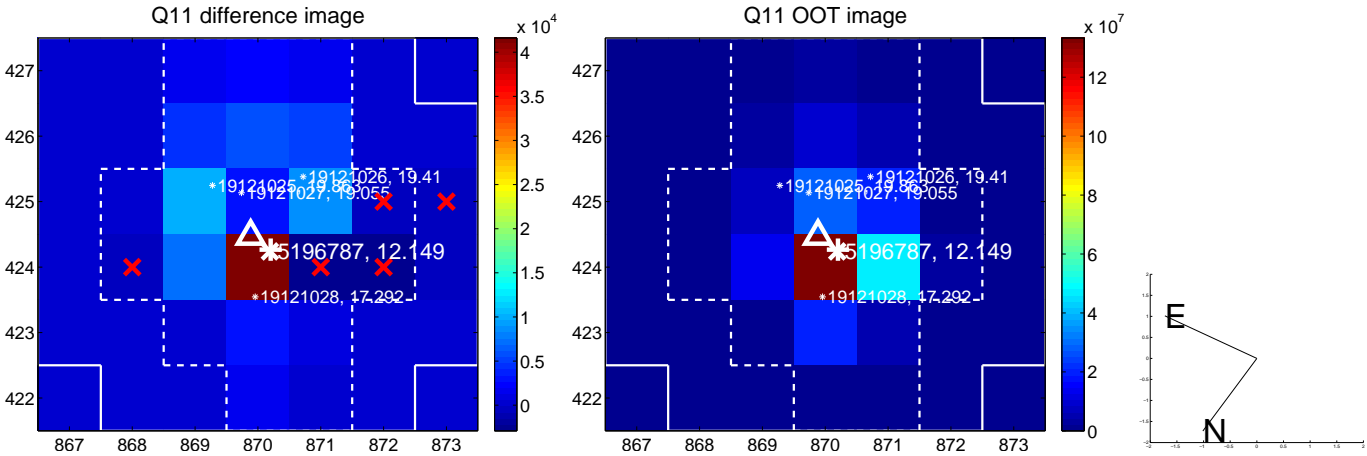
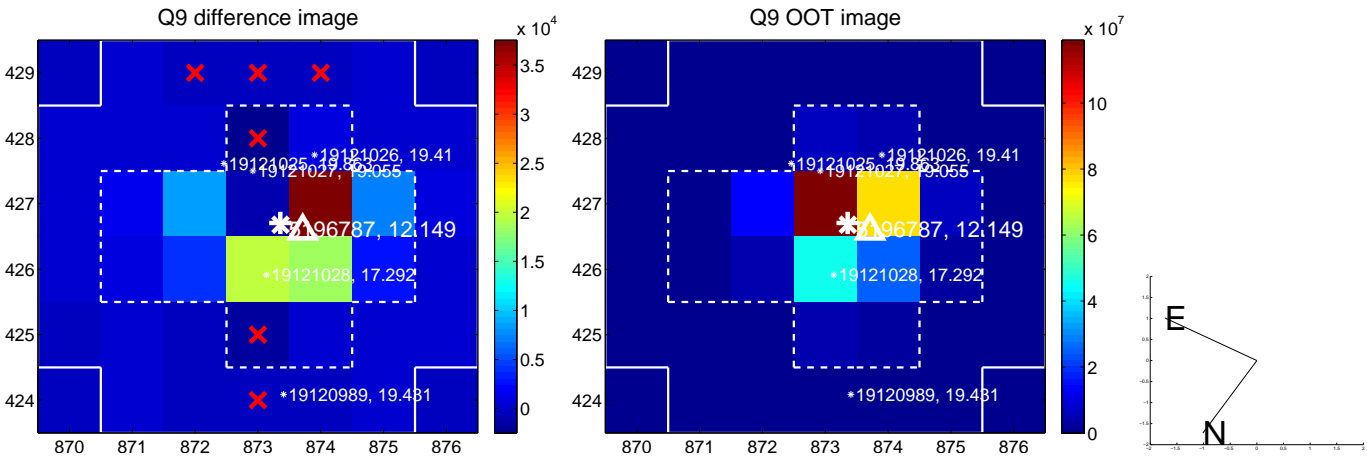
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



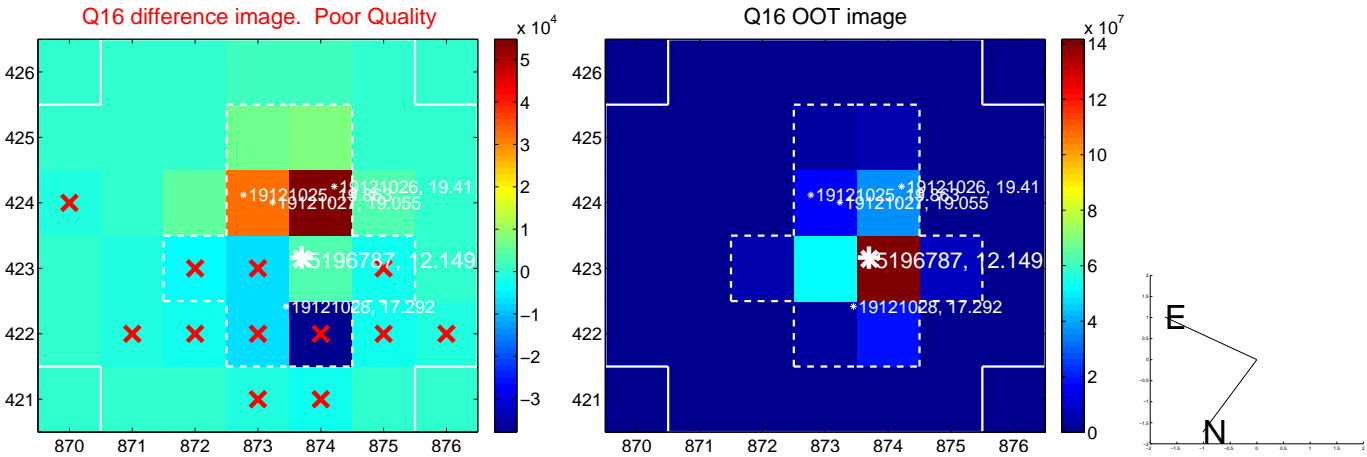
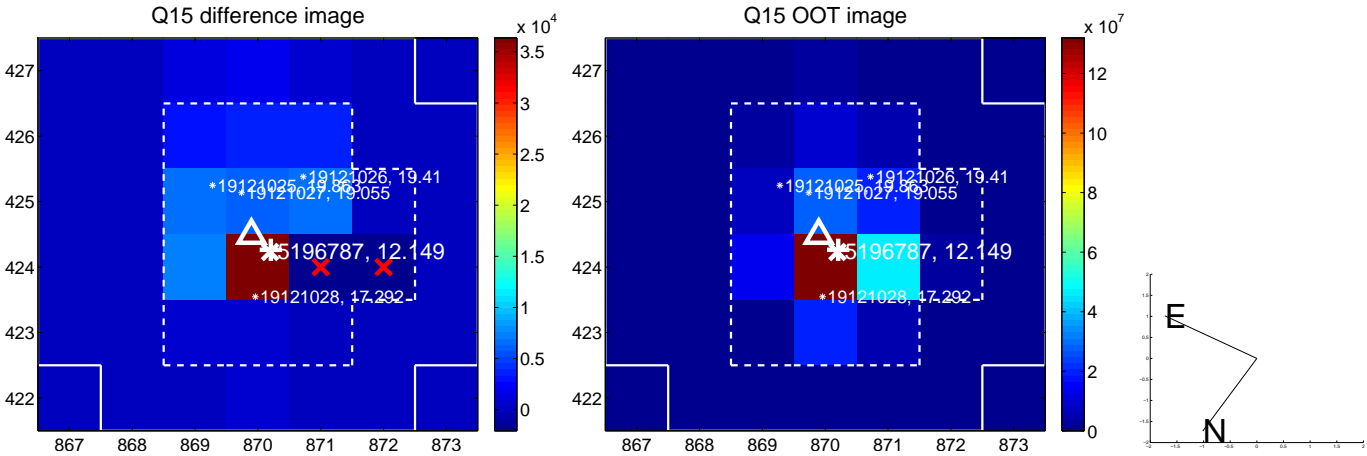
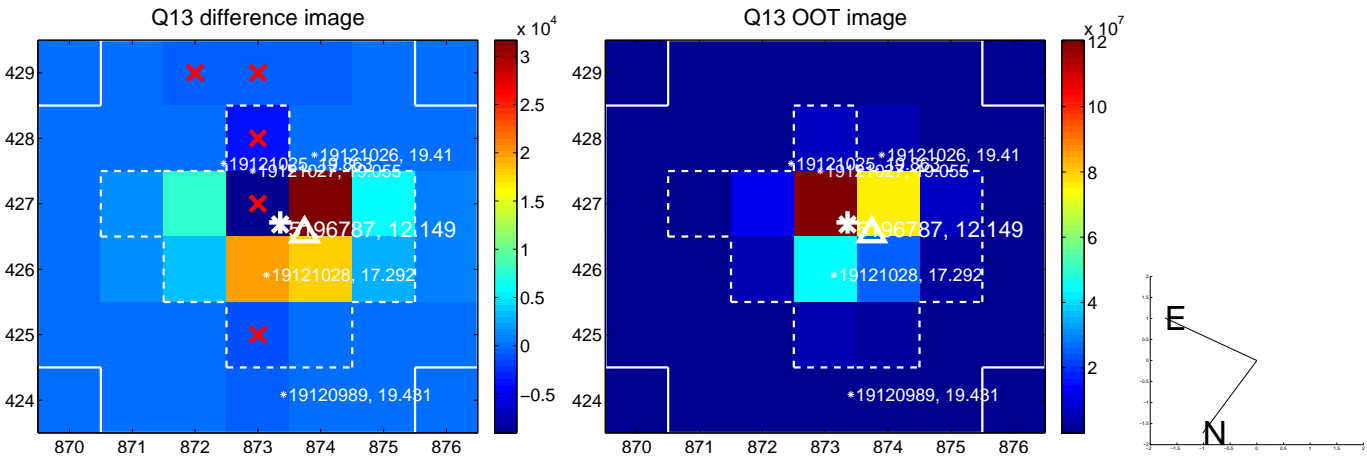
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



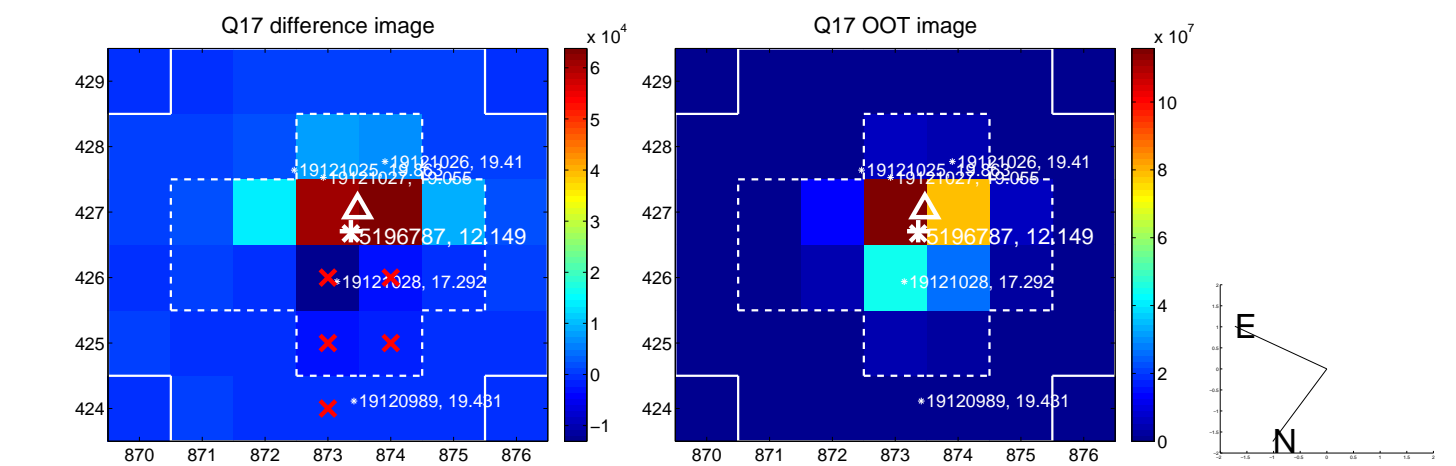
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



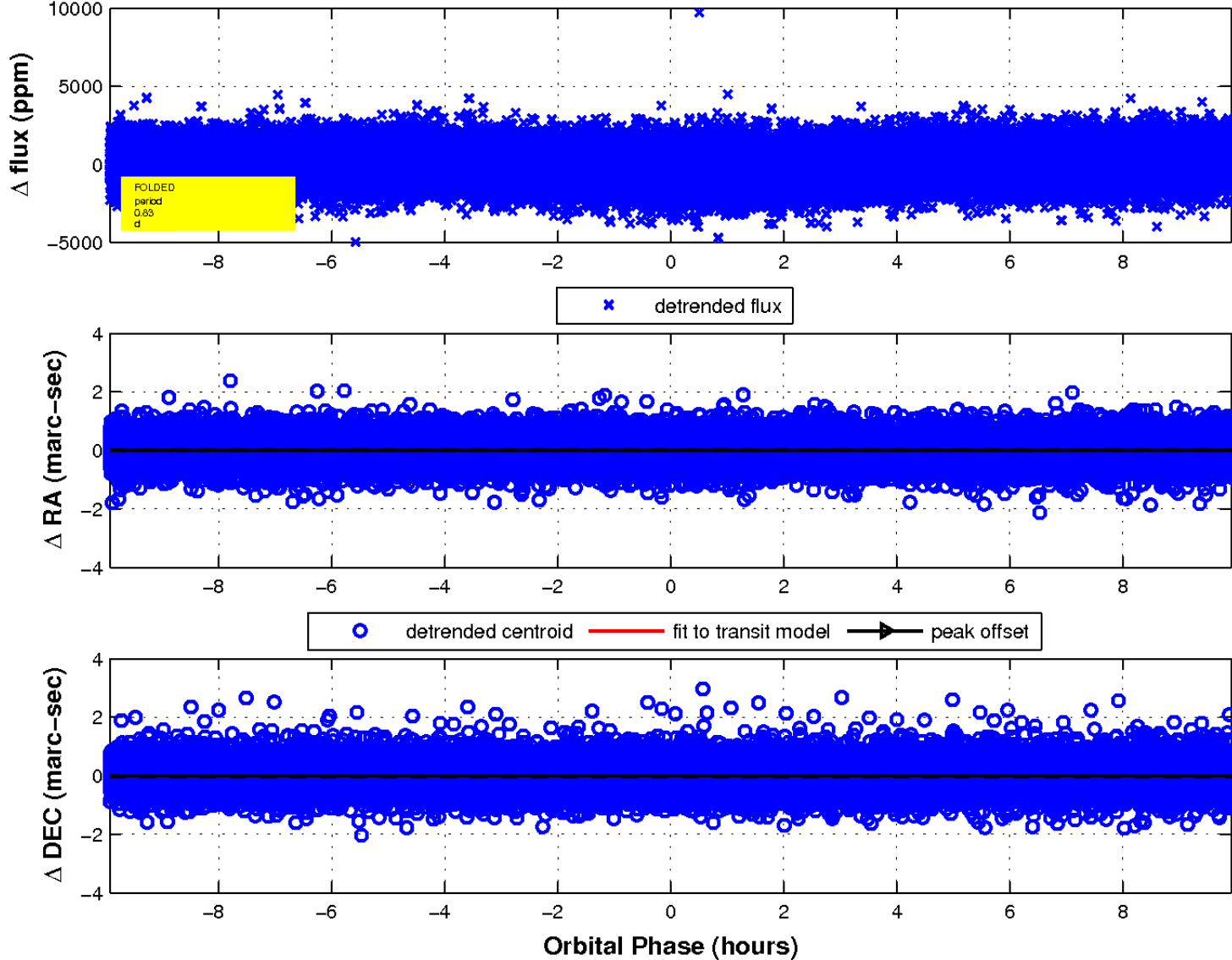
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

