

KIC 011560897

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})
011560897-01	OBS	2365.01	35.968334	138.668208	255.5	2.928	18.1	19.1	1.53	5883	2.92	48.79
011560897-02	OBS	2365.02	110.979692	147.042827	139.5	13.016	10.8	10.3	1.53	5883	2.01	10.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011560897-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011560897-02	OBS	PC	0.95	0	0	0	0	NO_COMMENT

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

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

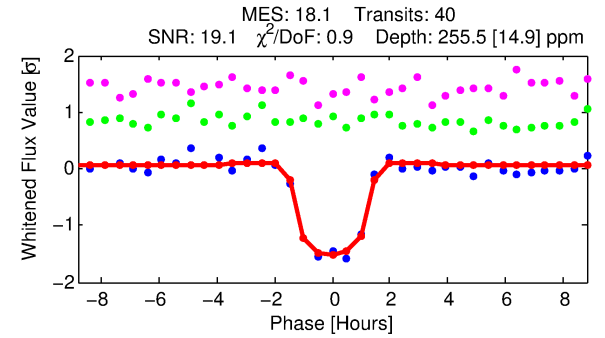
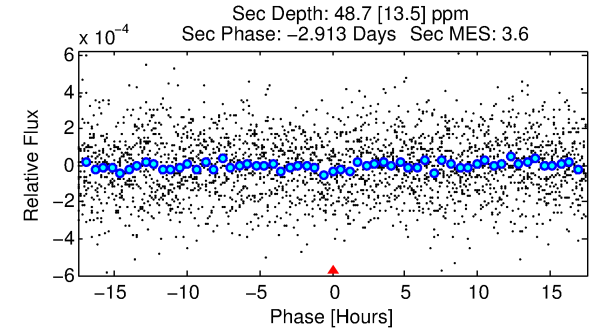
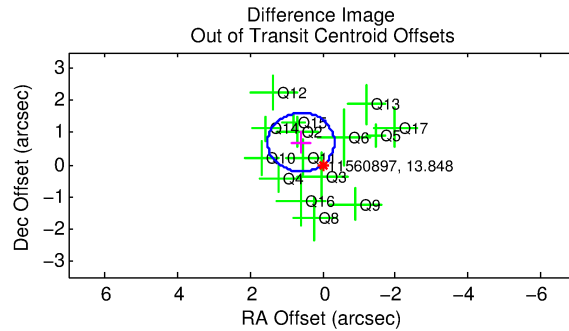
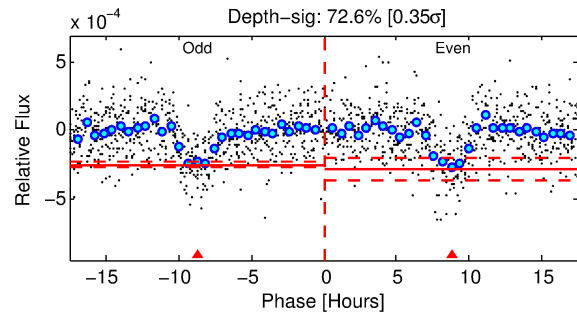
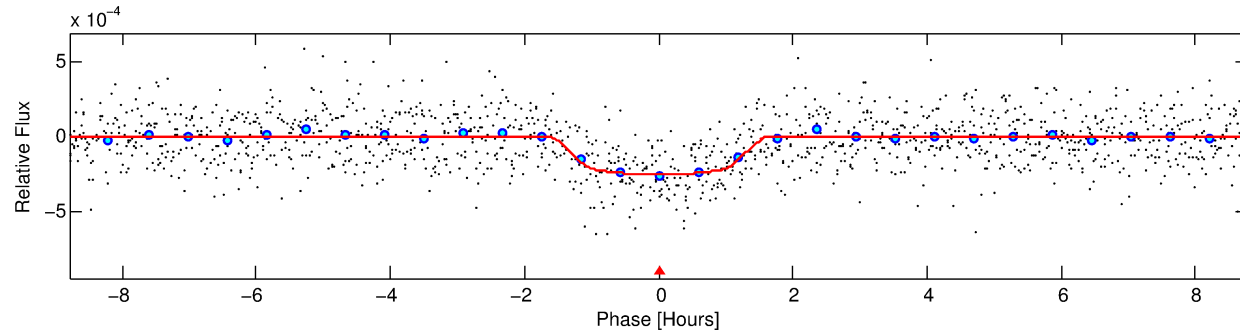
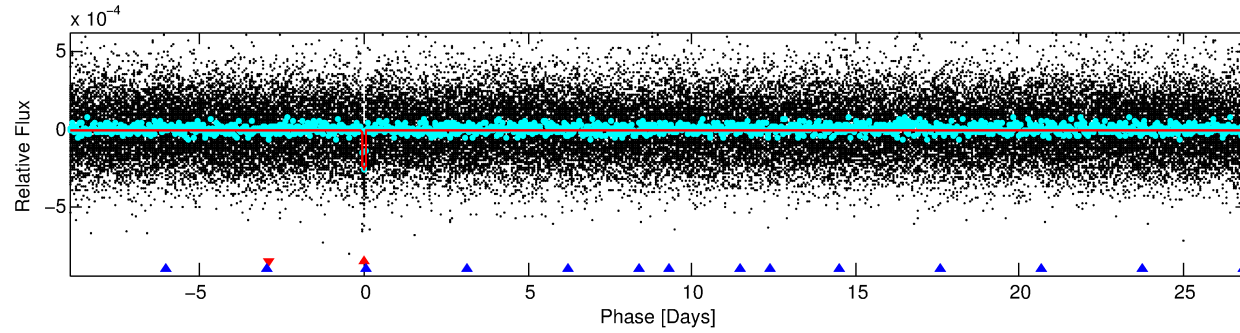
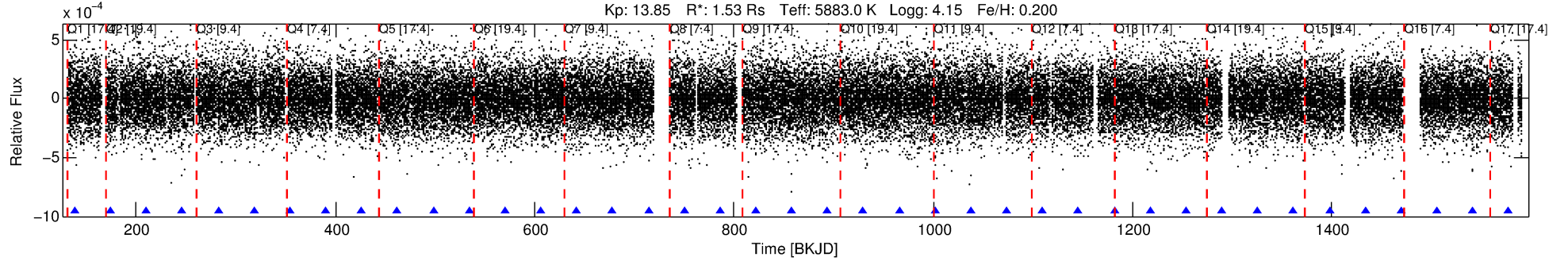
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011560897-01

No Significant Match Found

DV One-Page Summary

KIC: 11560897 Candidate: 1 of 2 Period: 35.968 d
KOI: K02365.01 Name: Kepler-430b Corr: 0.964



DV Fit Results:

Period = 35.96833 [0.00016] d
Epoch = 138.6682 [0.0036] BKJD
Rp/R* = 0.0175 [0.0046]
a/R* = 43.87 [54.75]
b = 0.90 [0.26]
Seff = 48.79 [15.00]
Teff = 674 [52] K
Rp = 2.92 [0.97] Re
a = 0.2268 [0.0435] AU
Ag = 161.99 [107.85] [1.49 σ]
Teffp = 3717 [553] K [5.48 σ]

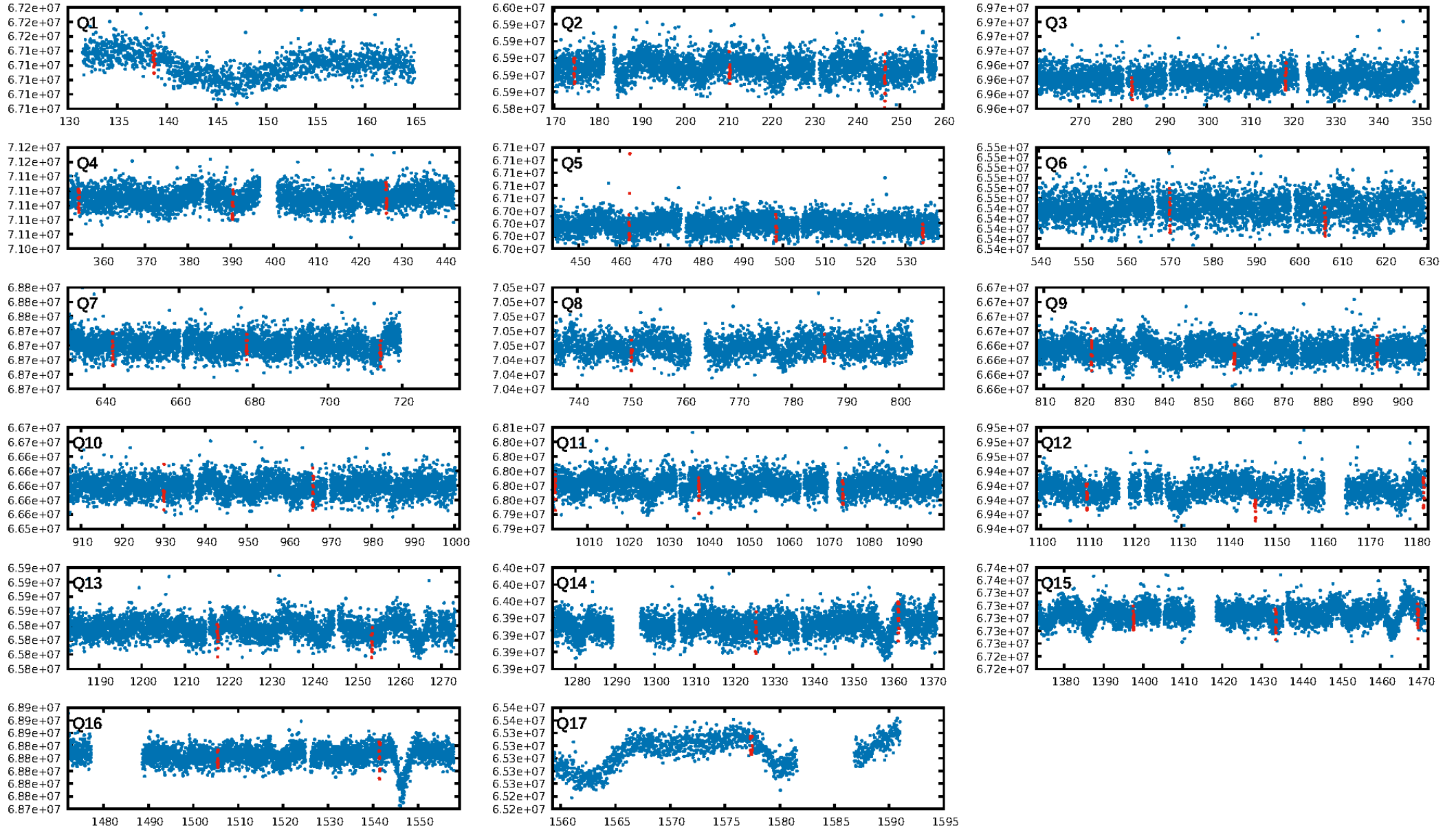
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [134.94 σ]
ModelChiSquare2-sig: 94.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.09e-71
RollingBand-fgt: 1.00 [38/38]
GhostDiagnostic-chr: 4.399
Centroid-sig: 2.3%
Centroid-so: 1.436 arcsec [2.10 σ]
OotOffset-rm: 0.919 arcsec [3.00 σ]
KicOffset-rm: 0.795 arcsec [2.59 σ]
OotOffset-st: 4/3/4/4 [15]
KicOffset-st: 4/3/4/4 [15]
DiffImageQuality-fgm: 0.93 [14/15]
DiffImageOverlap-fno: 1.00 [17/17]

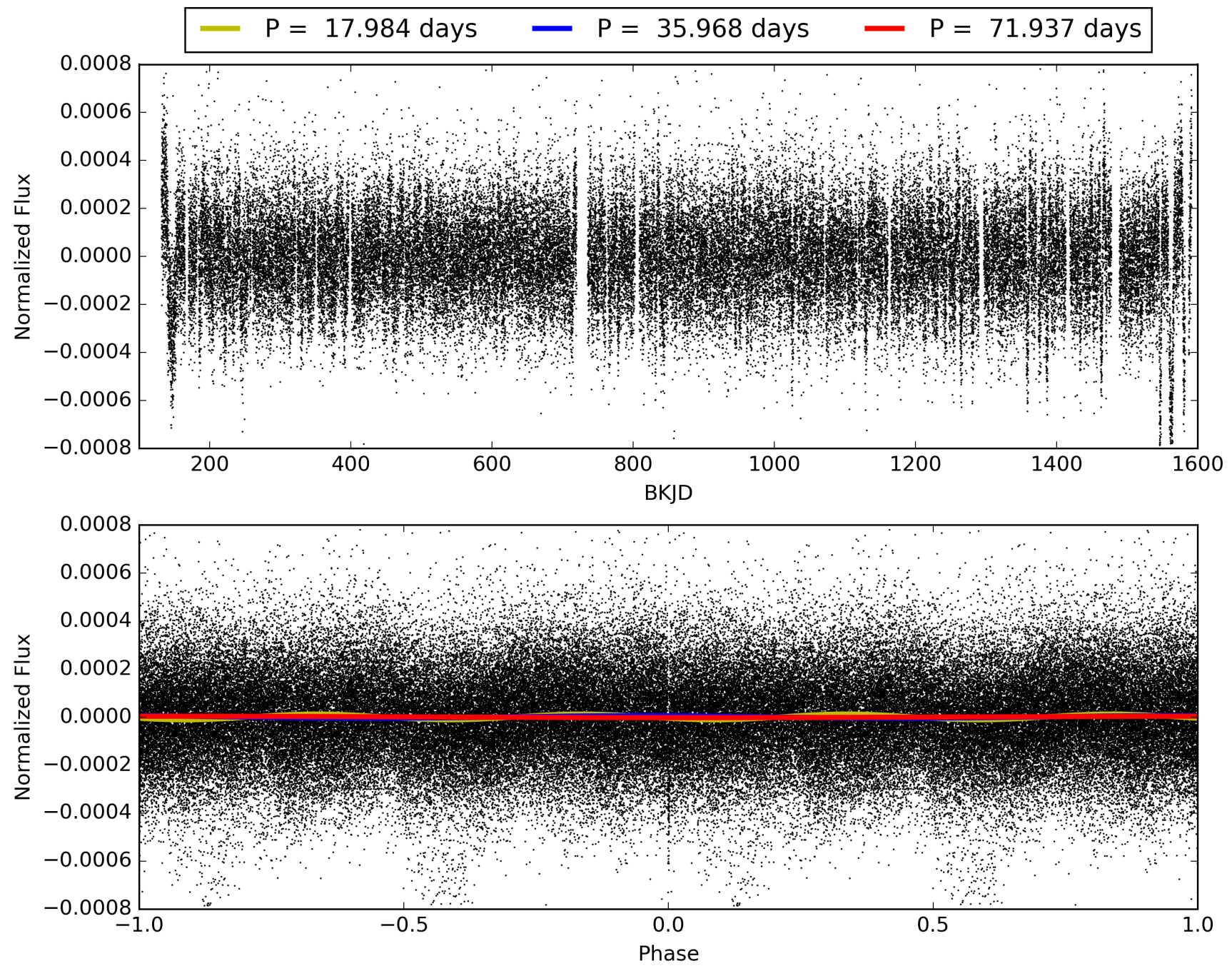
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 23:51:20 Z

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

TCE 011560897-01, PDC Light Curves

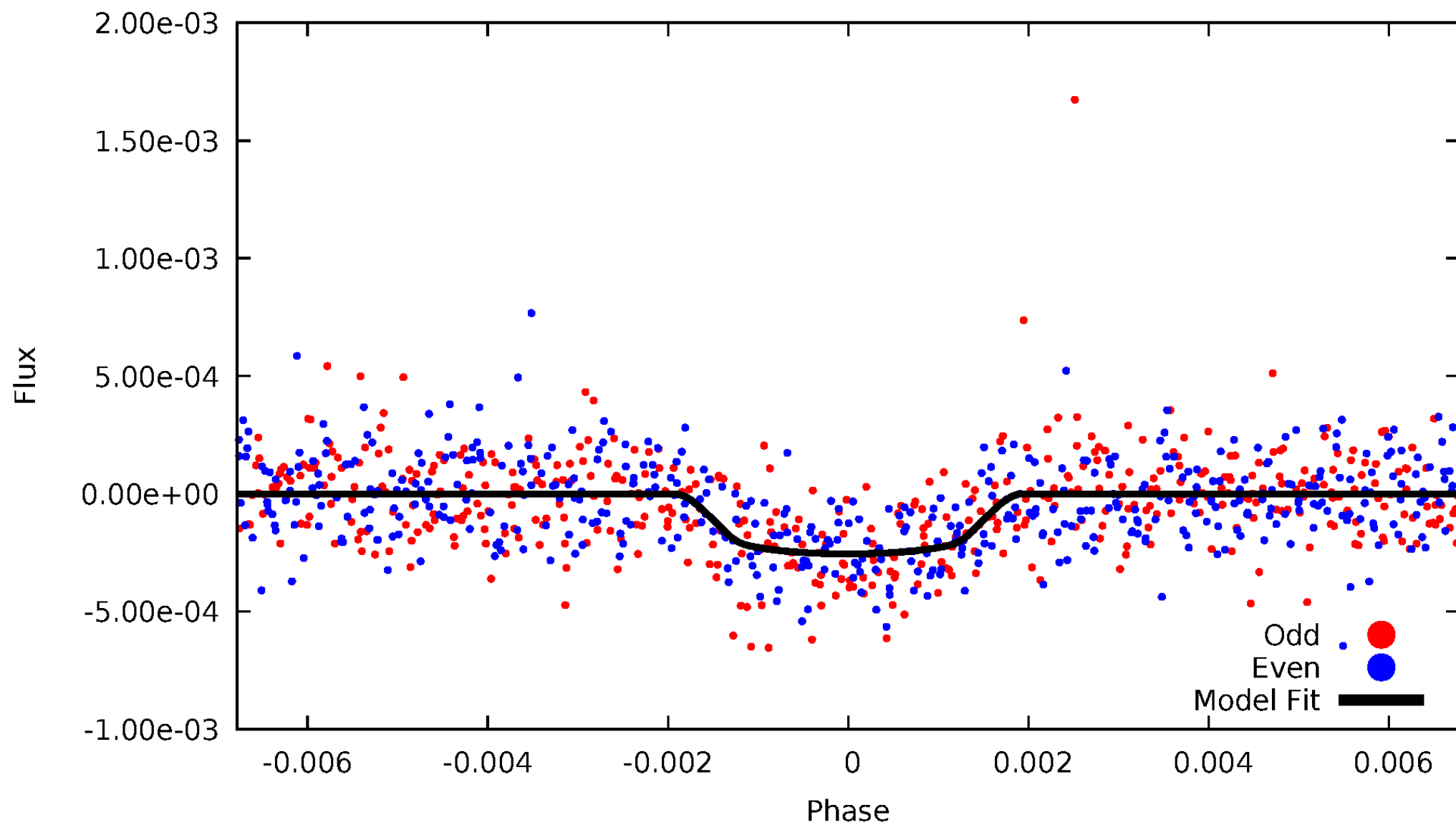


TCE 011560897-01



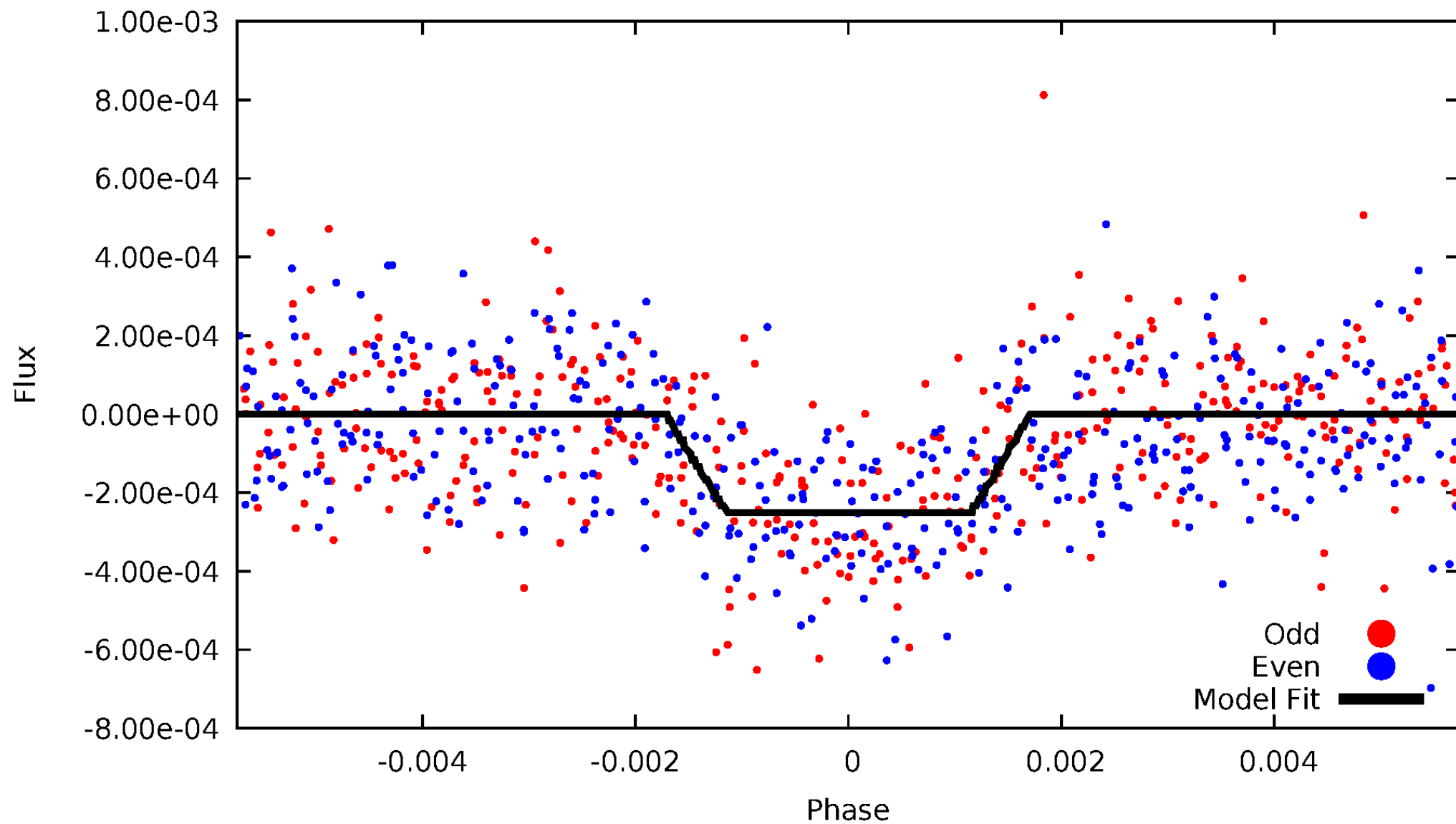
DV Odd/Even

TCE 011560897-01



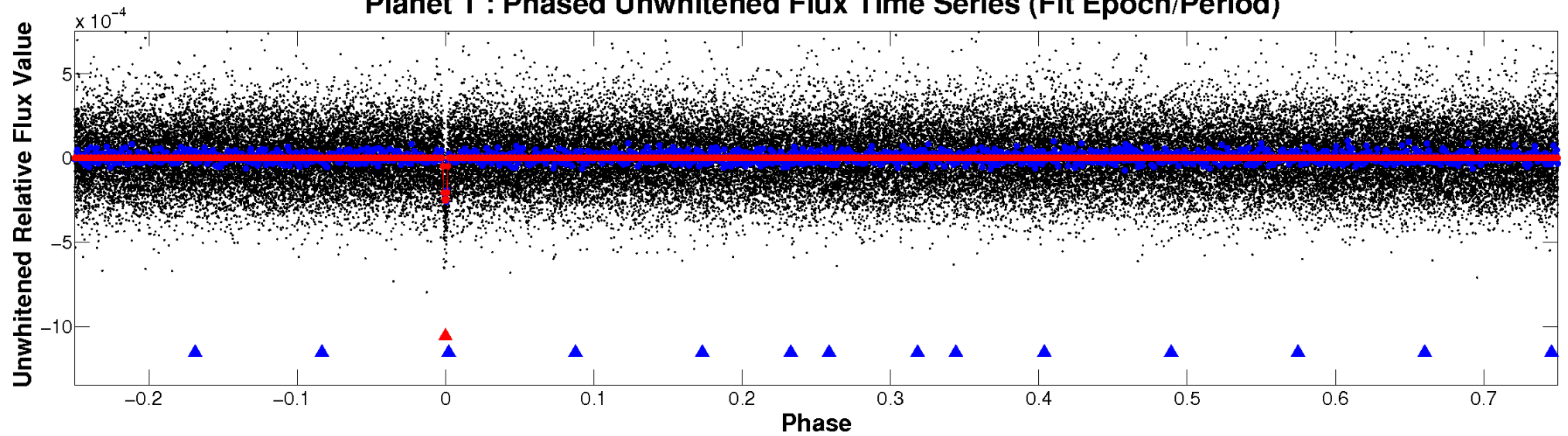
ALT Odd/Even

TCE 011560897-01

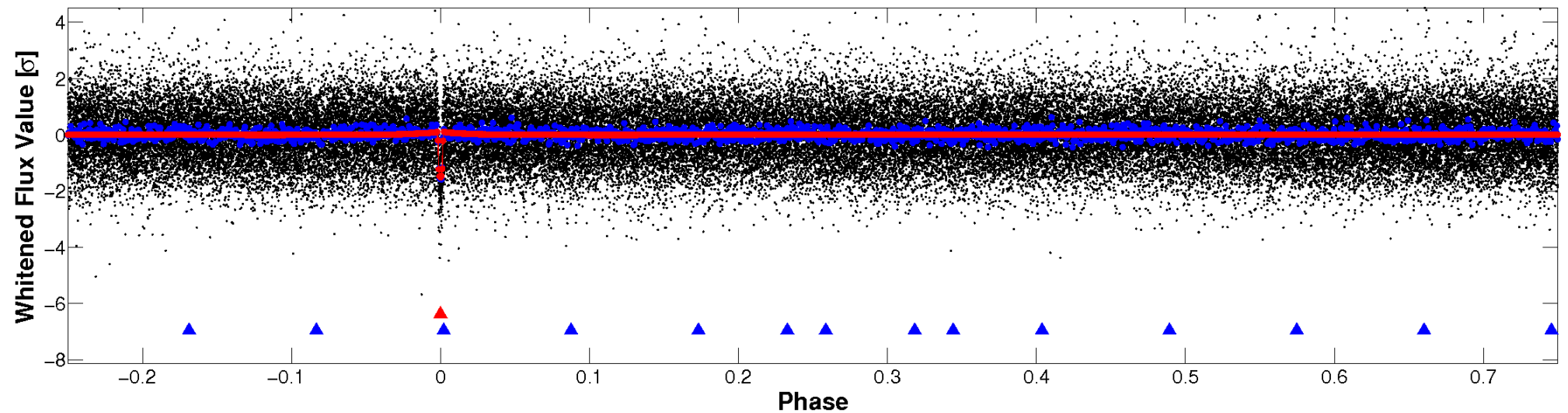


Non-Whitened Vs. Whitened Light Curve

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

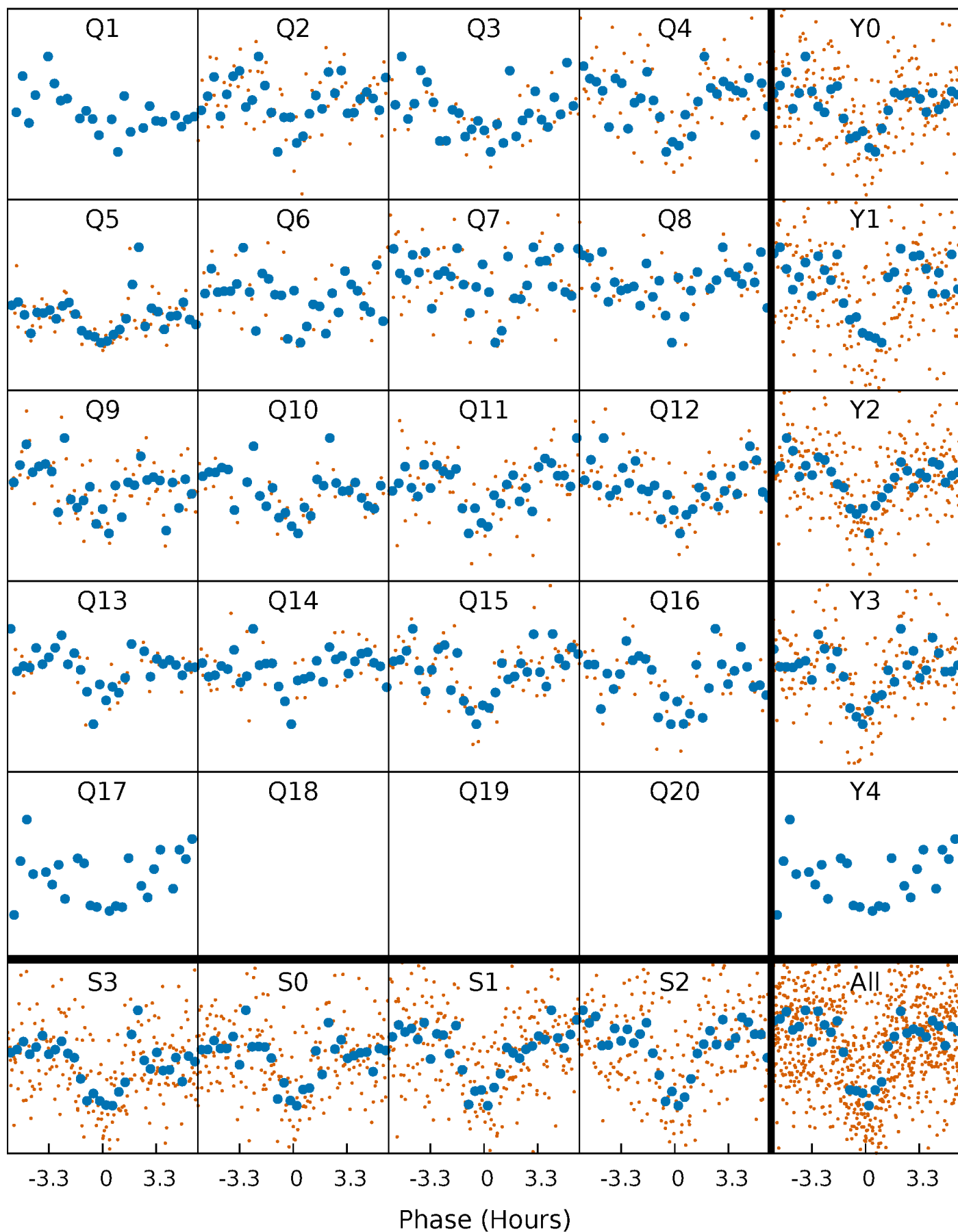


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



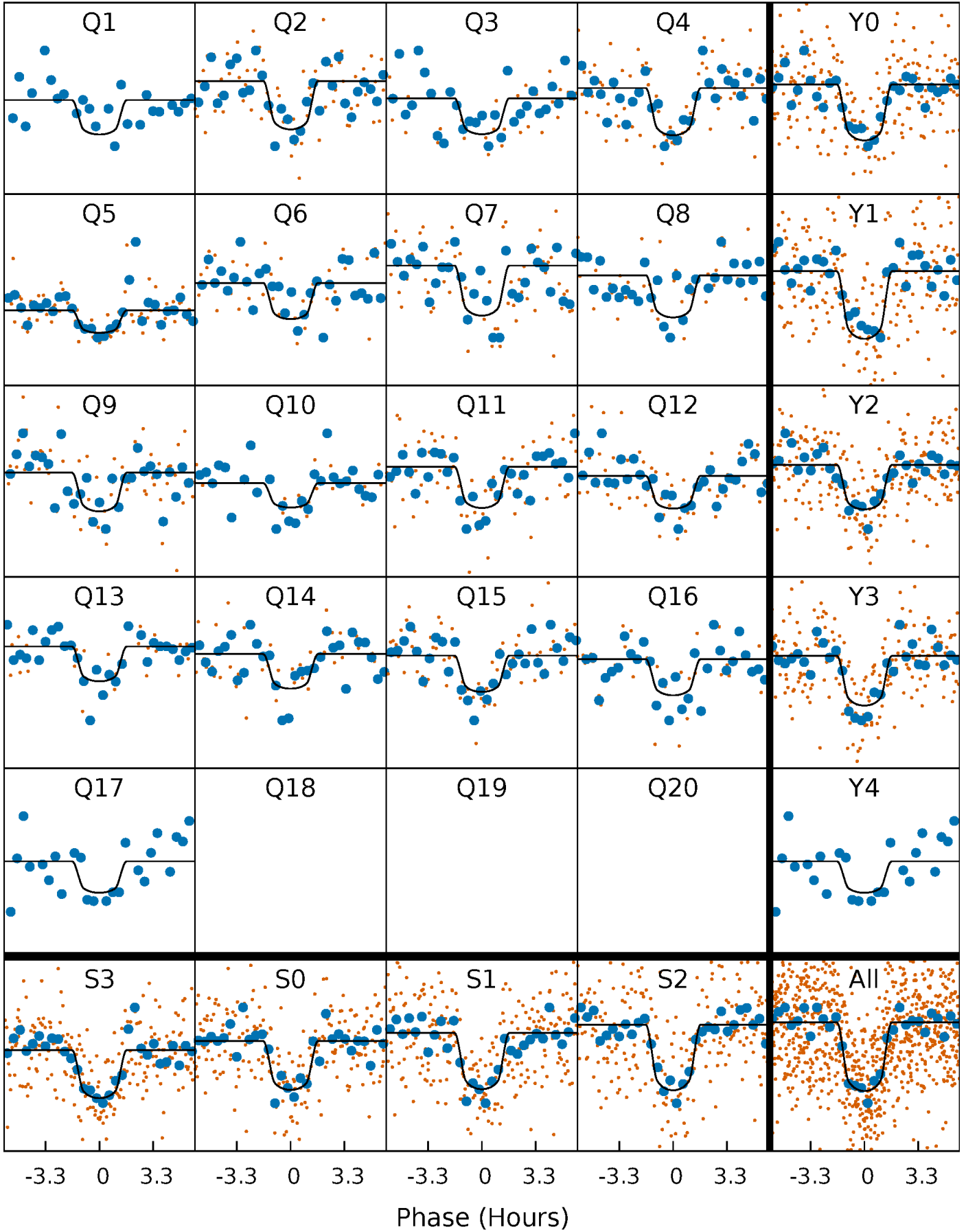
PDC Quarter-Phased Transit Curves

TCE 011560897-01 P= 35.968334 Days $T_0=138.668208$ (BKJD)



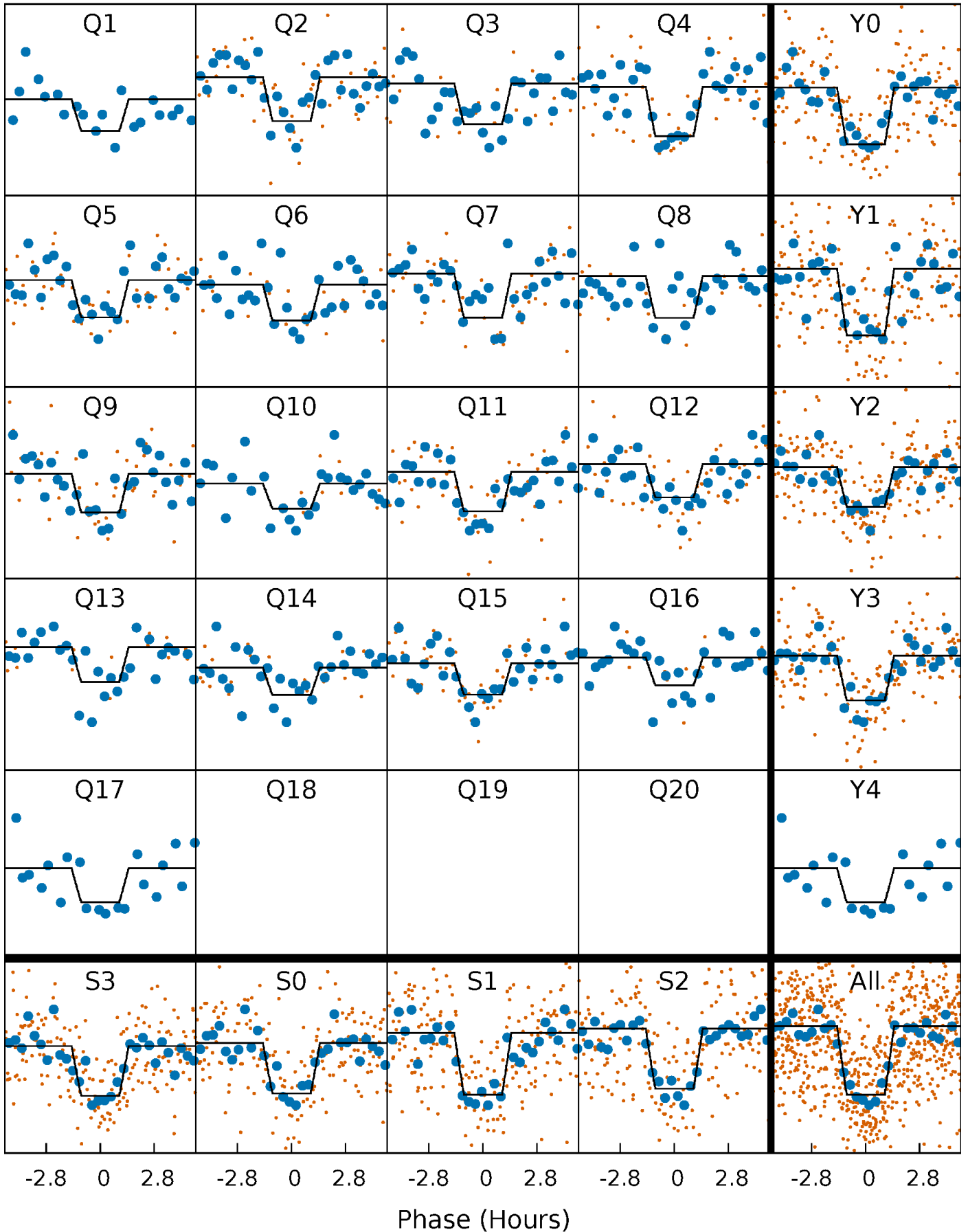
DV Quarter-Phased Transit Curves

TCE 011560897-01 P= 35.968334 Days $T_0=138.668208$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

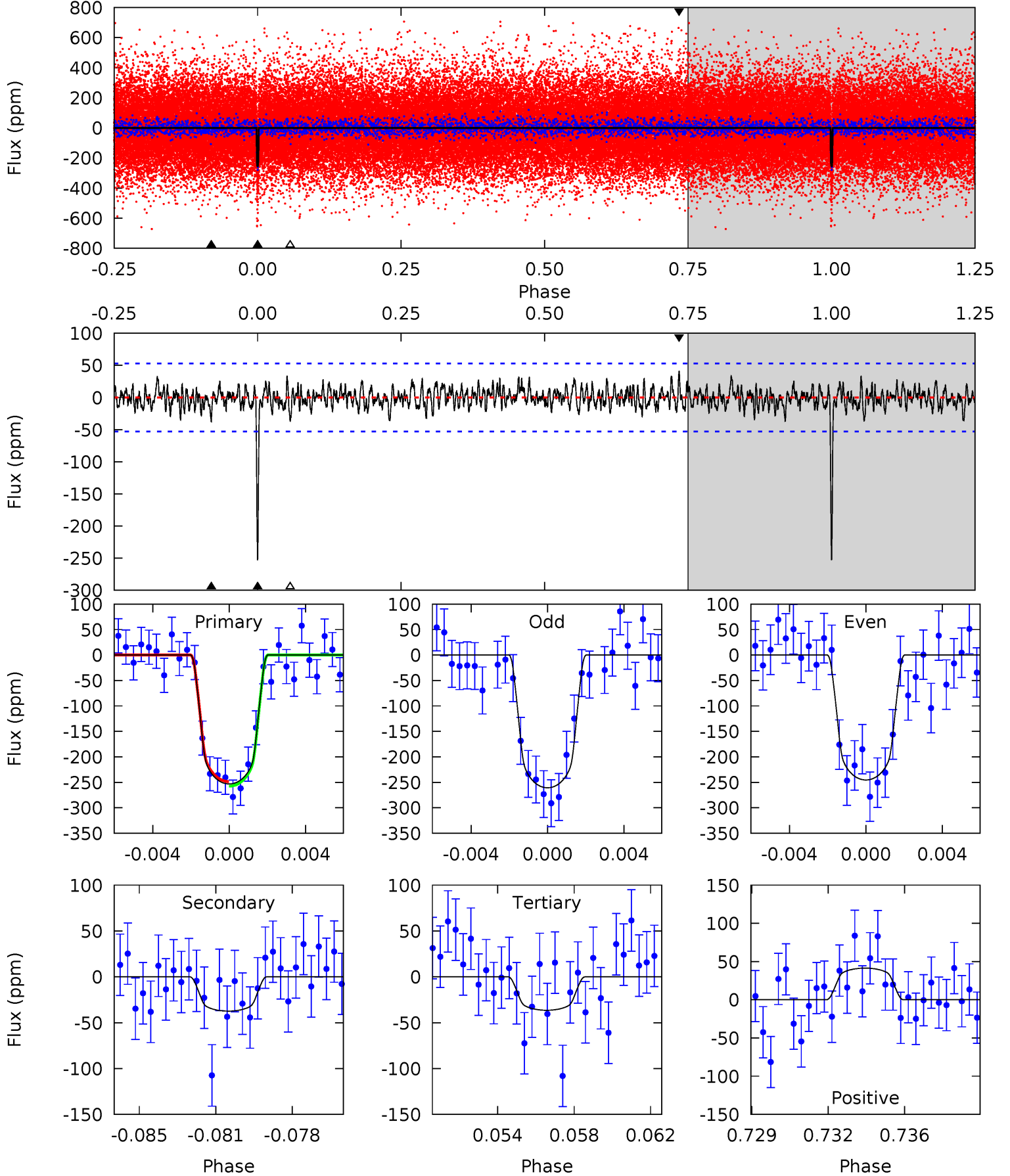
TCE 011560897-01 P= 35.968027 Days $T_0=138.674939$ (BKJD)



DV Model-Shift Uniqueness Test

011560897-01, $P = 35.968334$ Days, $E = 102.699874$ Days

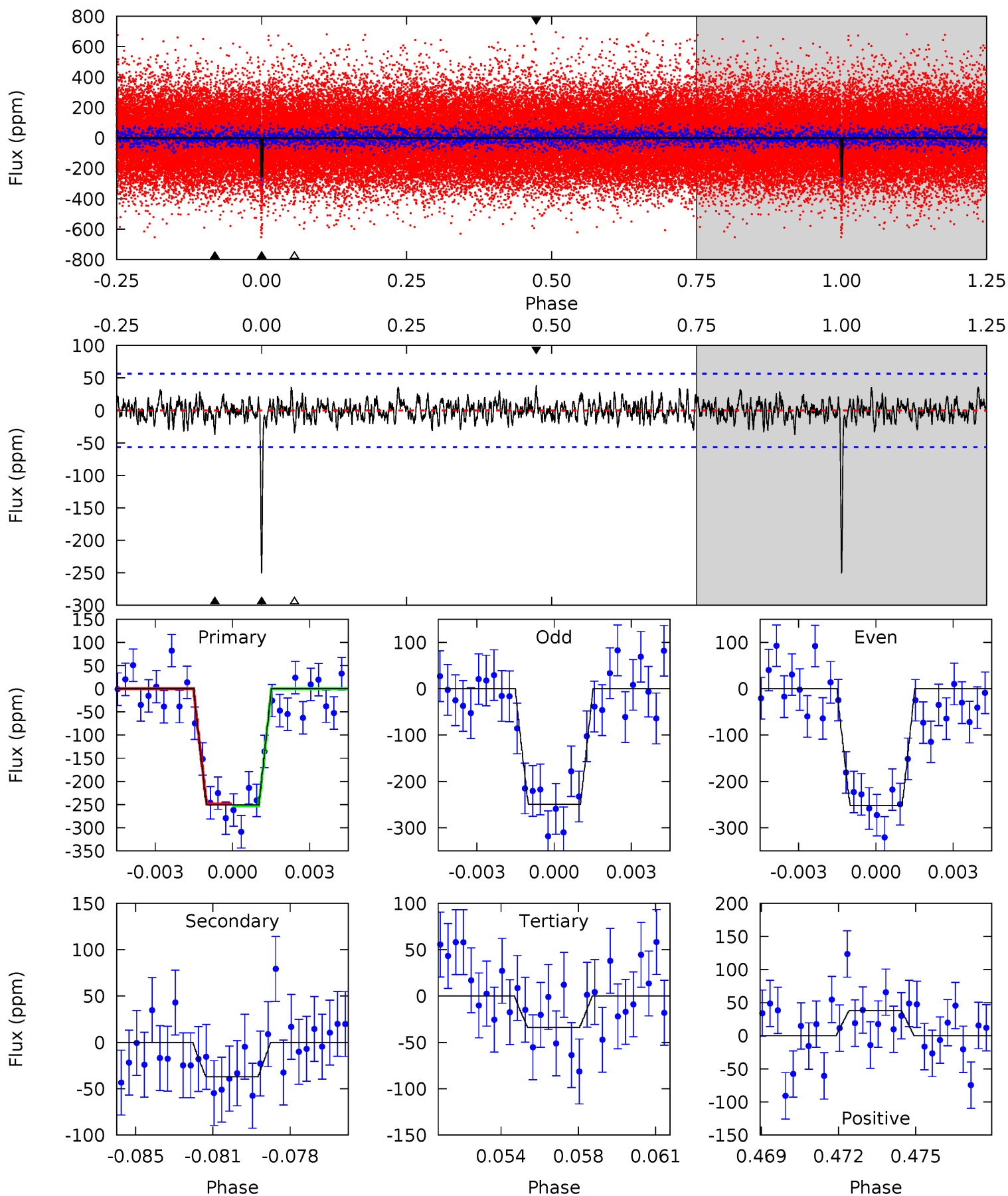
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.9	3.67	3.58	4.06	5.21	2.89	1.21	21.3	20.8	0.09	-0.39	0.75	0.99	0.14	0.44



Alt Model-Shift Uniqueness Test

011560897-01, P = 35.968027 Days, E = 102.706912 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.1	3.44	3.13	3.52	5.23	2.93	1.09	20.0	19.6	0.31	-0.09	0.11	1.00	0.13	0.18



Stellar Parameters For KIC 011560897

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5883^{+79}_{-79}	$4.149^{+0.176}_{-0.095}$	$0.200^{+0.150}_{-0.150}$	$1.529^{+0.256}_{-0.313}$	$1.205^{+0.089}_{-0.145}$	$0.475^{+0.406}_{-0.162}$
	+1%/-1%	+4%/-2%	+75%/-75%	+17%/-20%	+7%/-12%	+85%/-34%
Source	SPE84	SPE84	SPE84	DSEP		

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

Secondary Eclipse Parameters for KIC 011560897-01 / KOI 2365.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-37 ± 10	$2.79^{+0.88}_{-0.78}$	934^{+42}_{-51}	3854^{+495}_{-368}	133^{+134}_{-61}
Alt.	-37 ± 11	$2.56^{+0.79}_{-0.82}$	934^{+42}_{-49}	3980^{+624}_{-403}	156^{+193}_{-75}

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 $A_{obs} \gg 1.0$

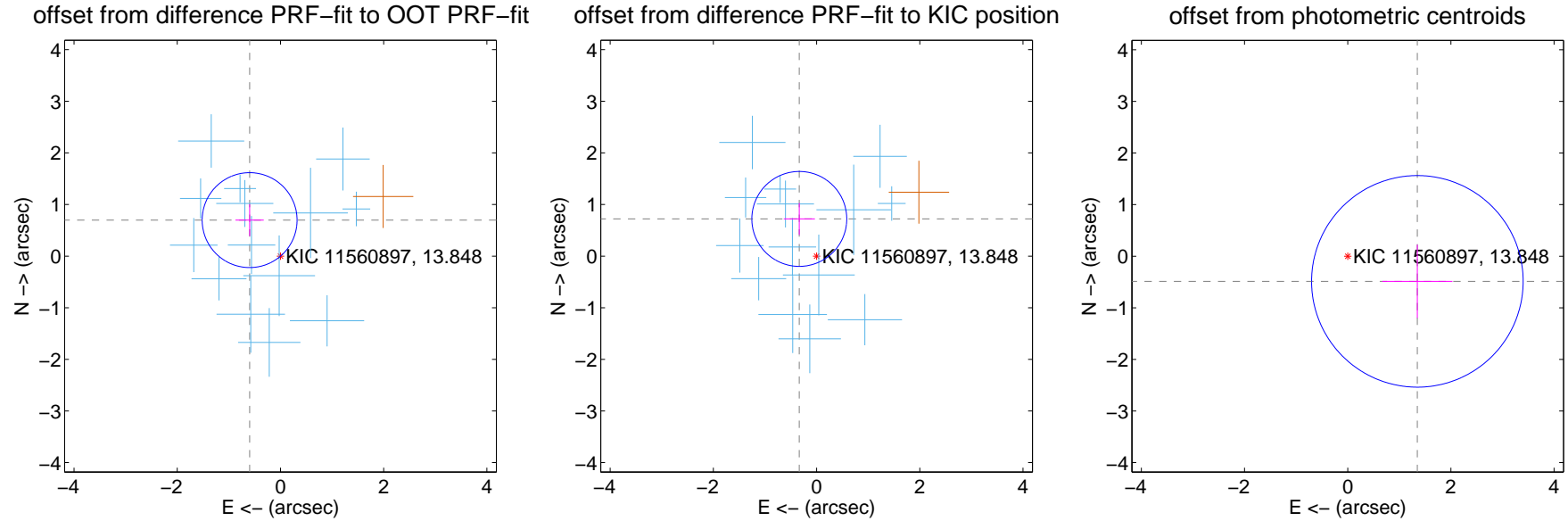
DV Centroid Data

Supplemental centroid analysis for 011560897-01. Kepler magnitude: 13.85. Transit SNR 19.12

There are 14 quarters with good PRF difference image offsets

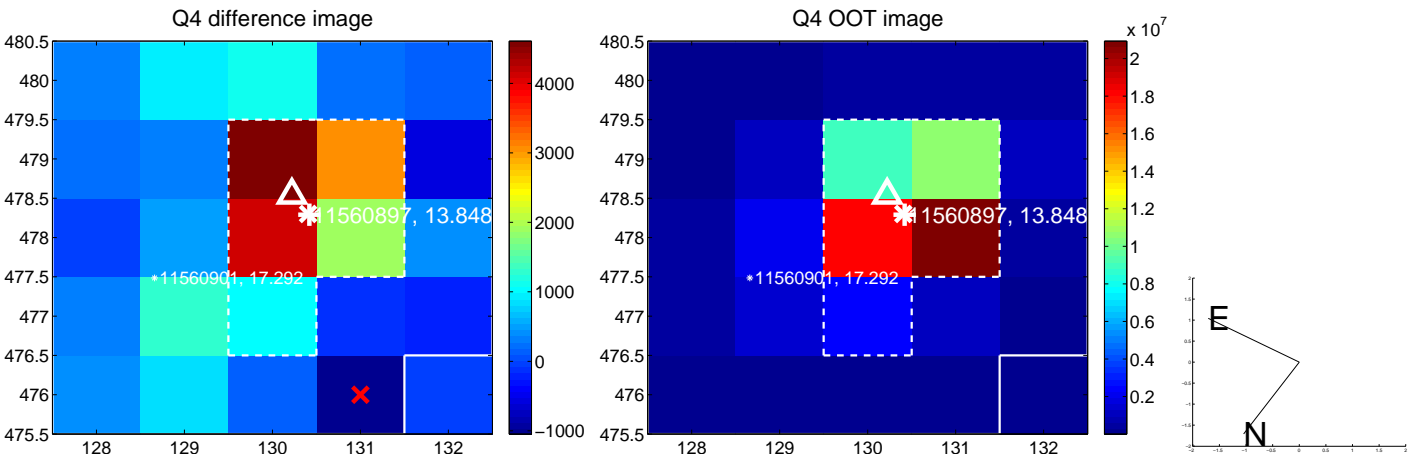
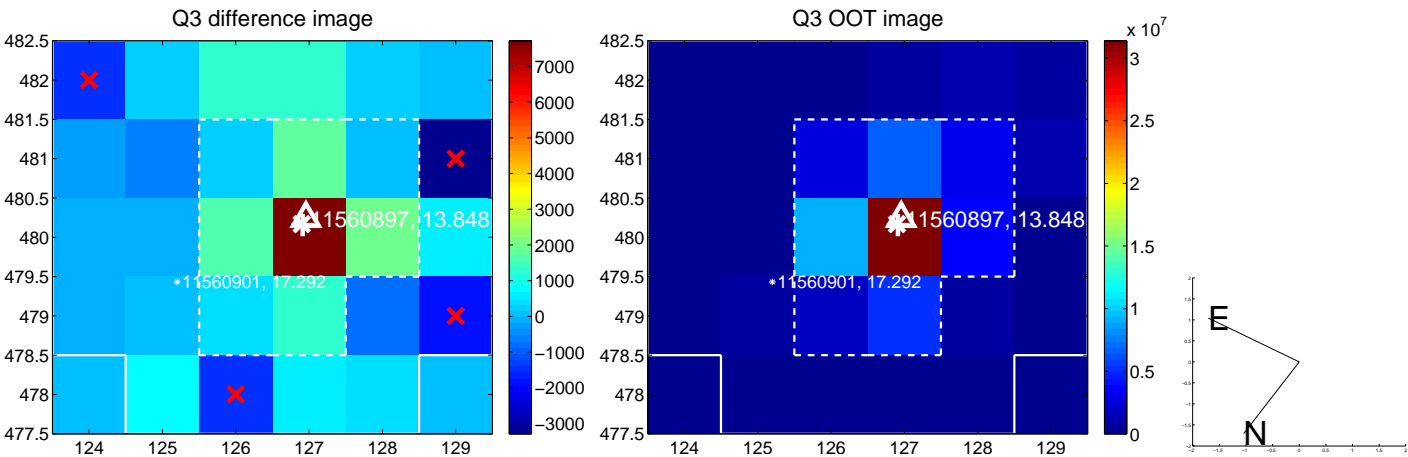
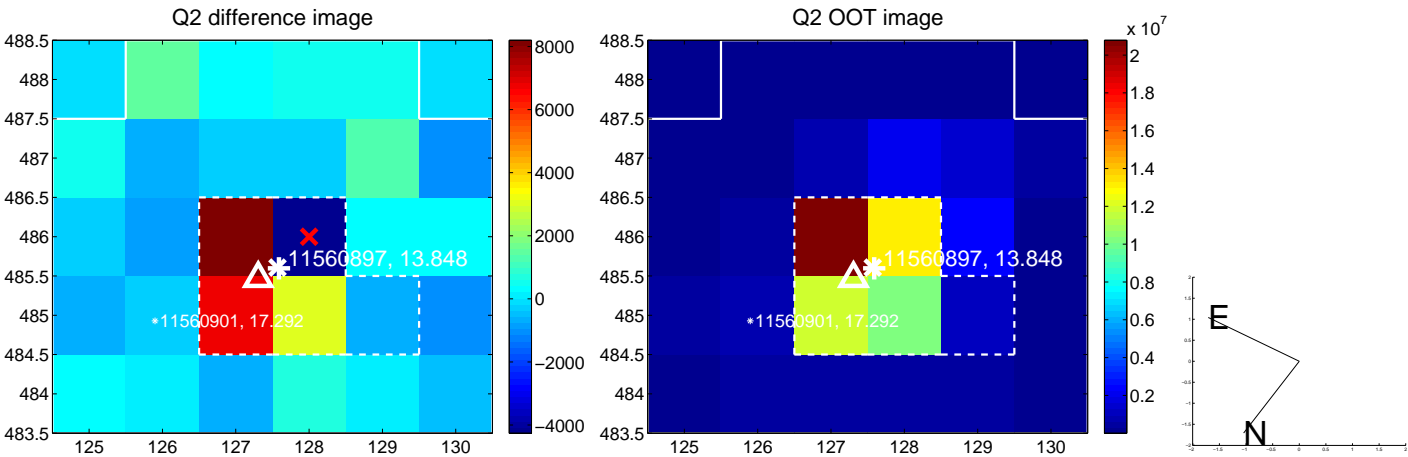
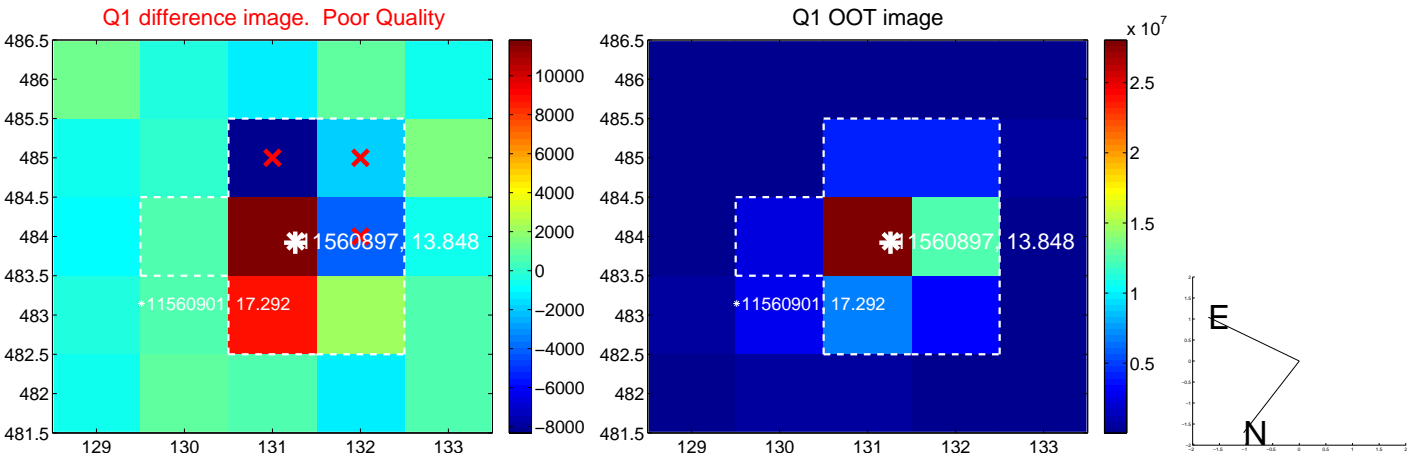
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.919 ± 0.306	3.00	0.598 ± 0.275	0.698 ± 0.309
PRF-fit source offset from KIC position	0.795 ± 0.307	2.59	0.335 ± 0.302	0.721 ± 0.308
photometric centroid source offset	1.44 ± 0.68	2.10	-1.35 ± 0.68	-0.49 ± 0.71

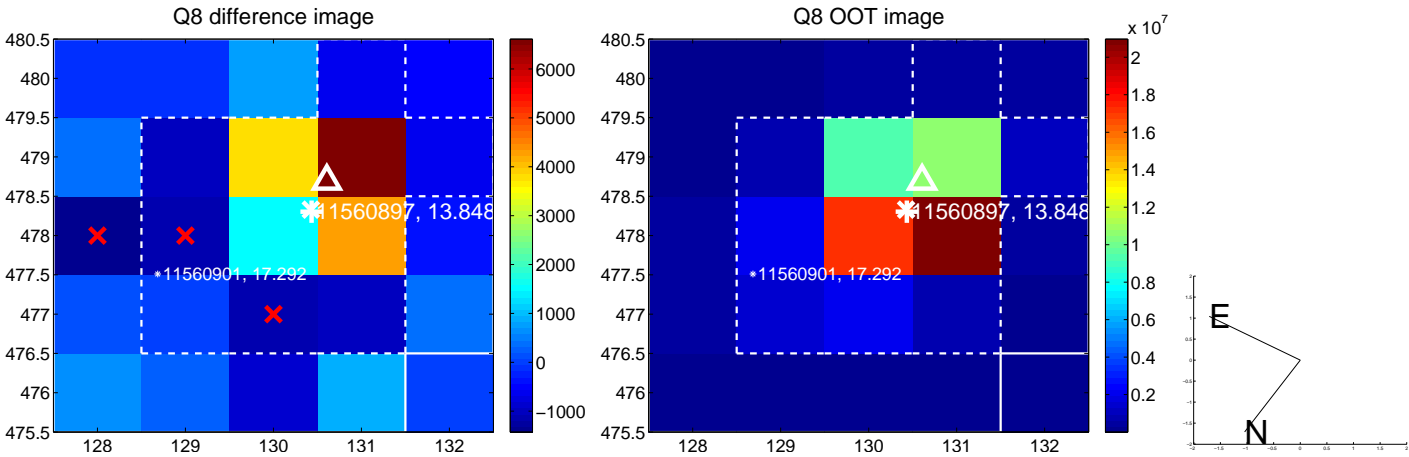
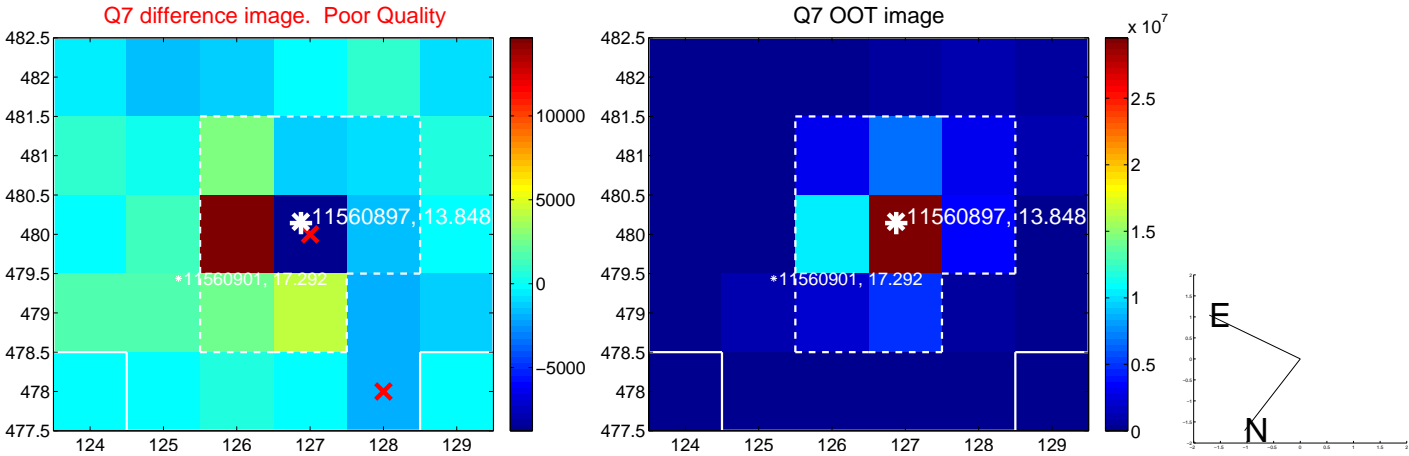
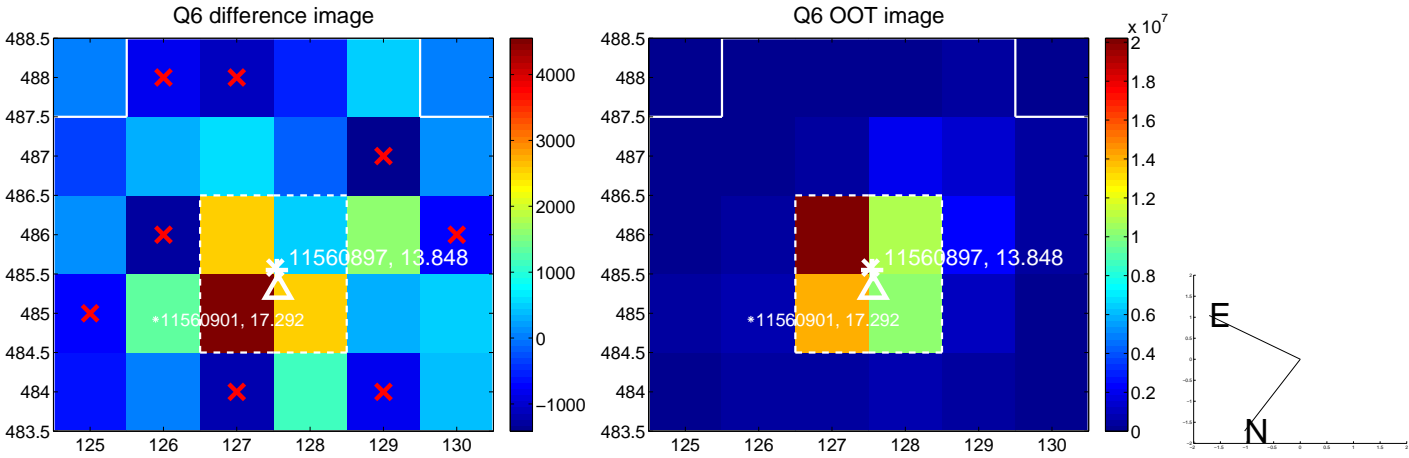
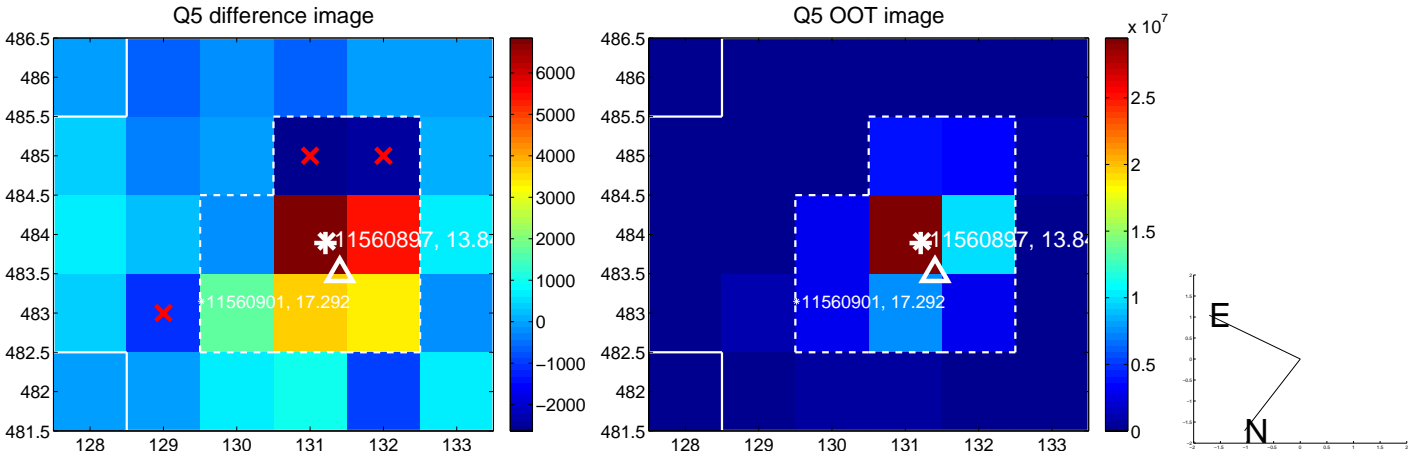


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

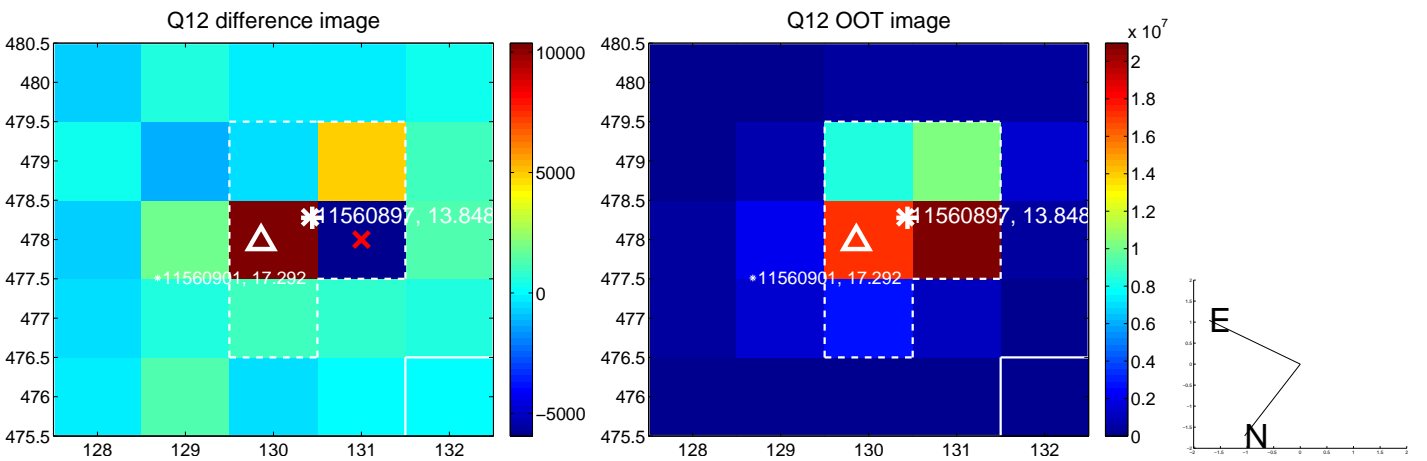
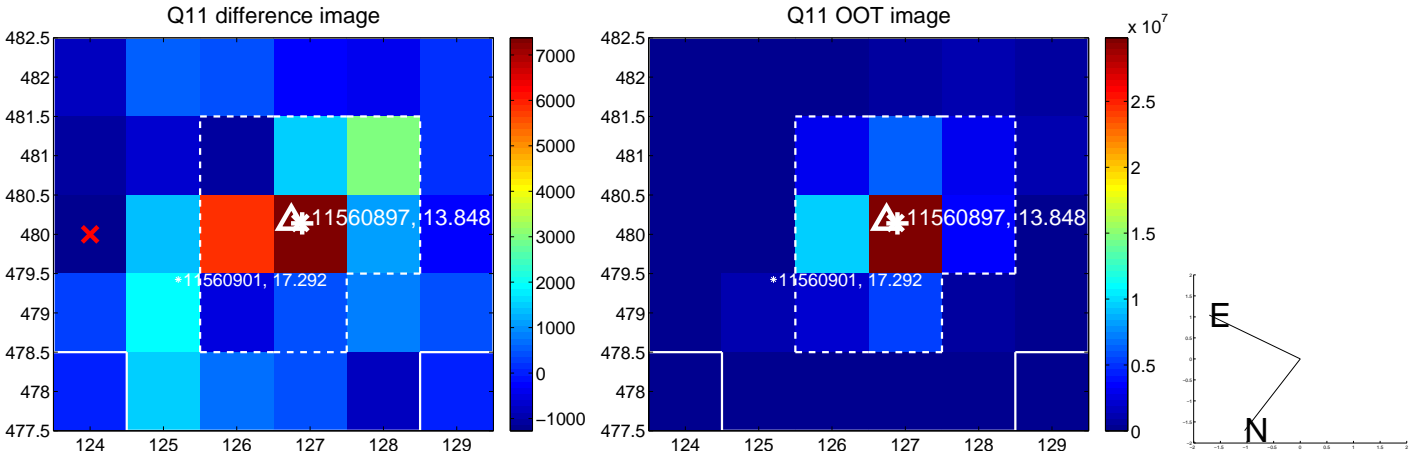
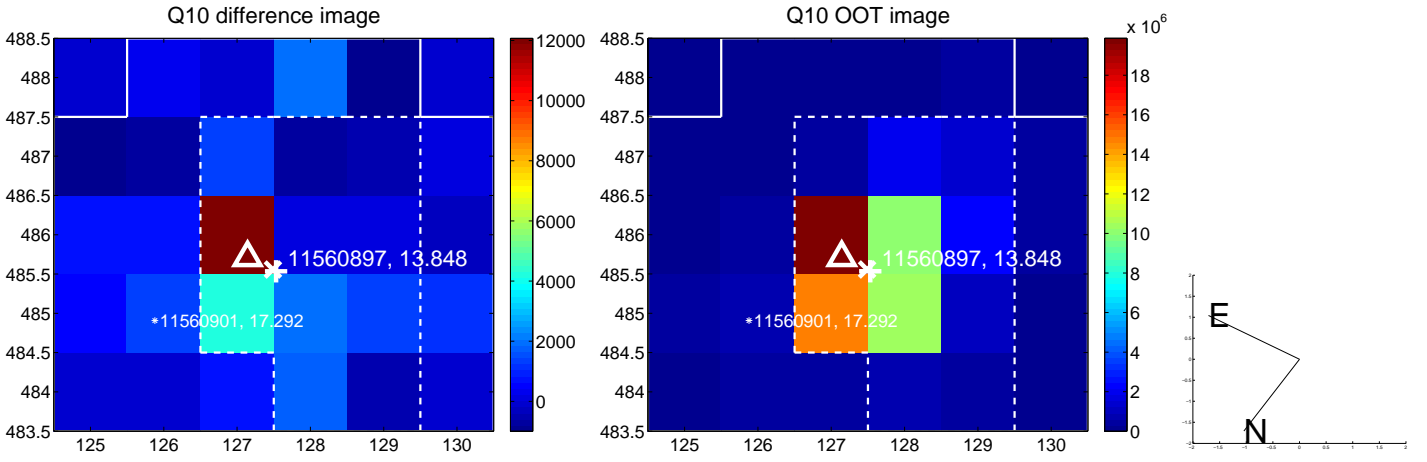
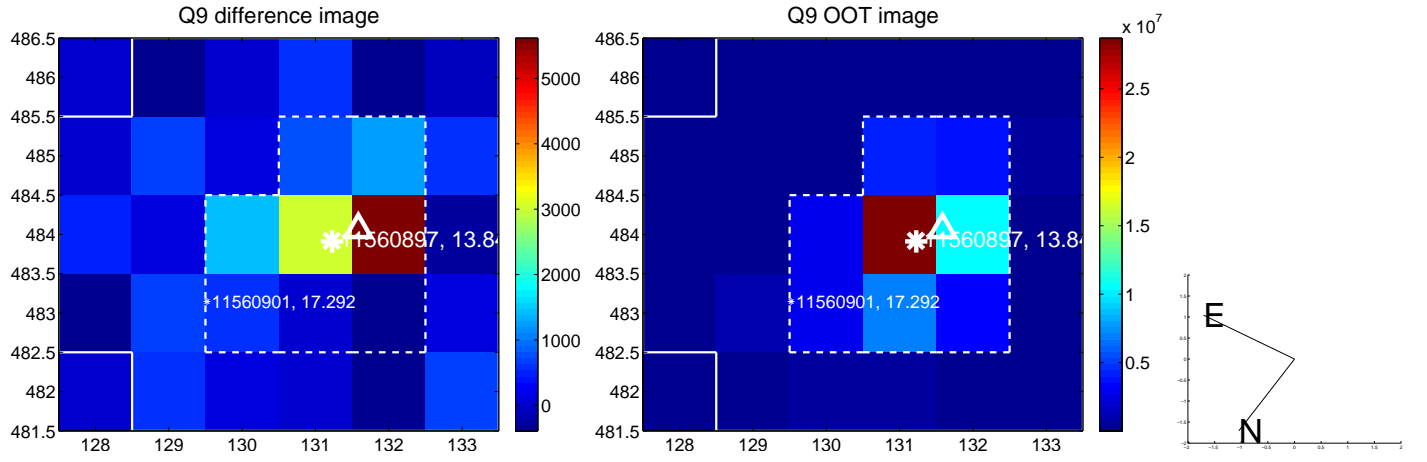
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



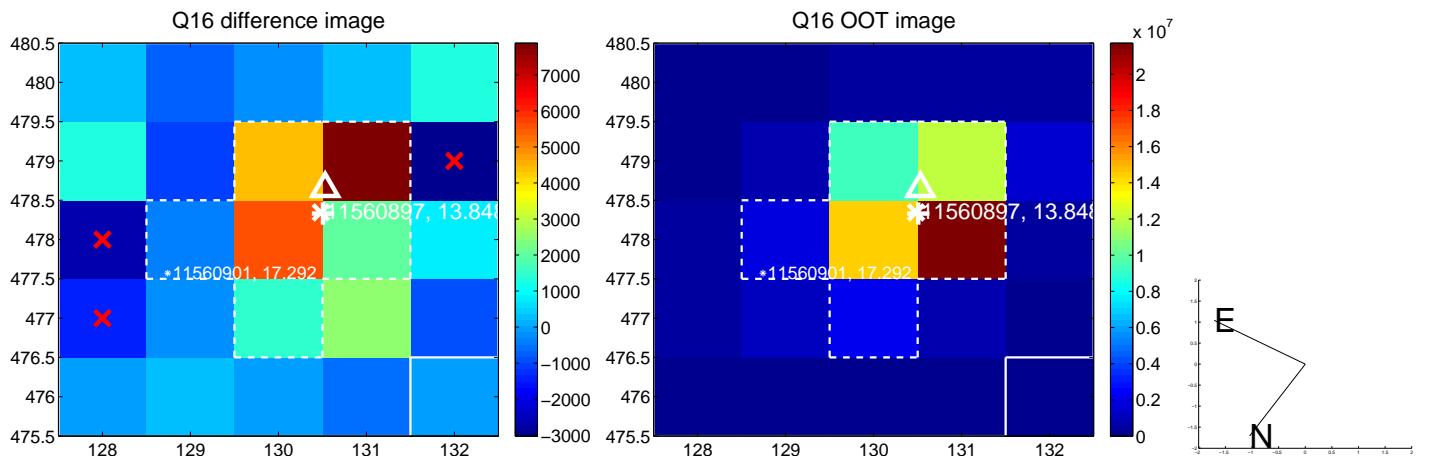
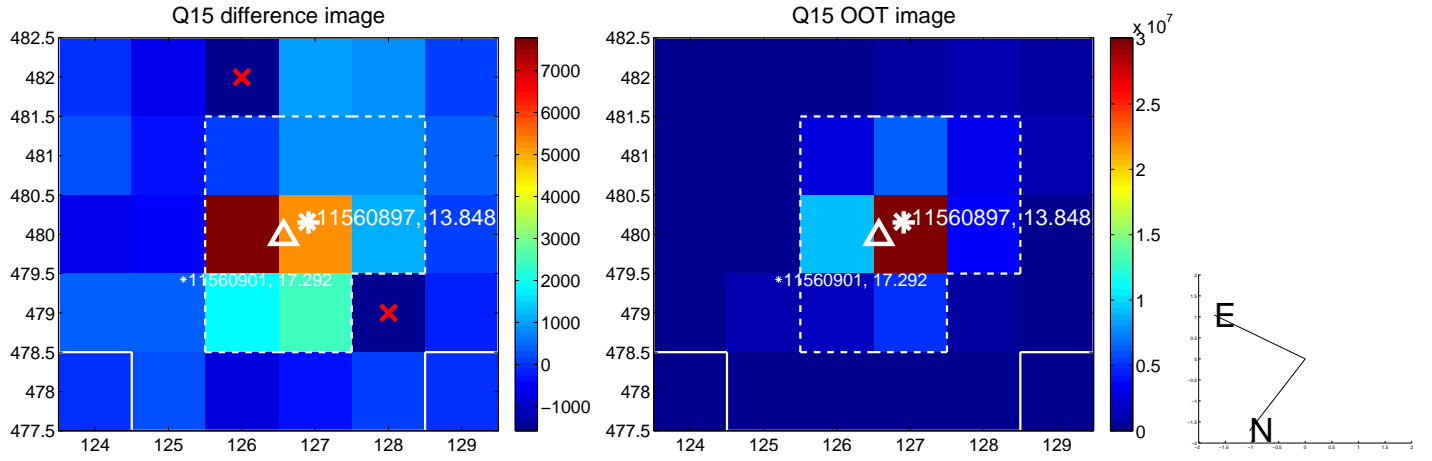
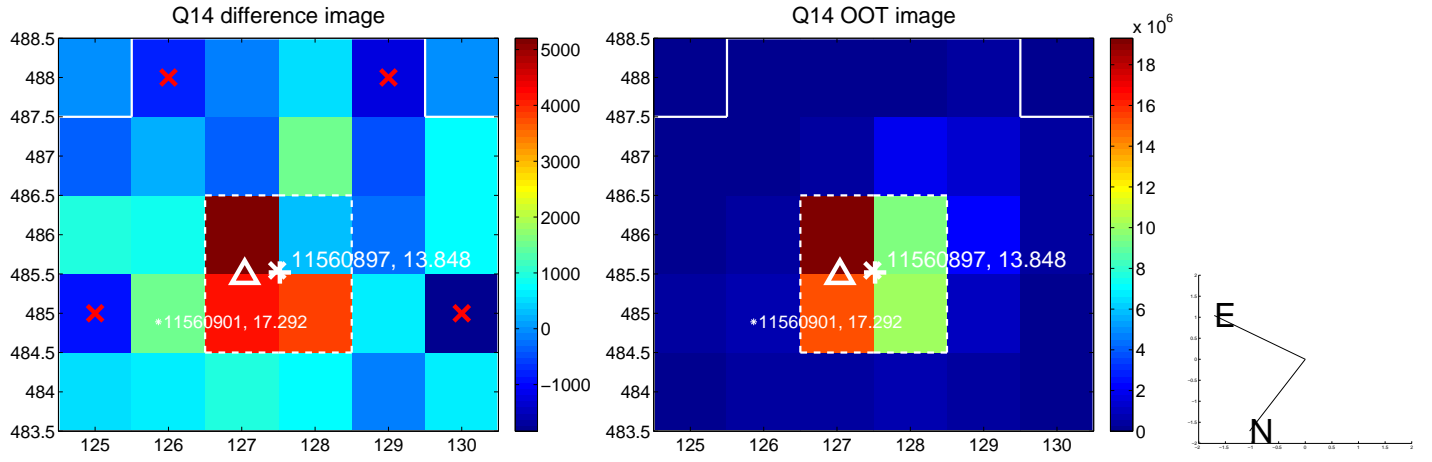
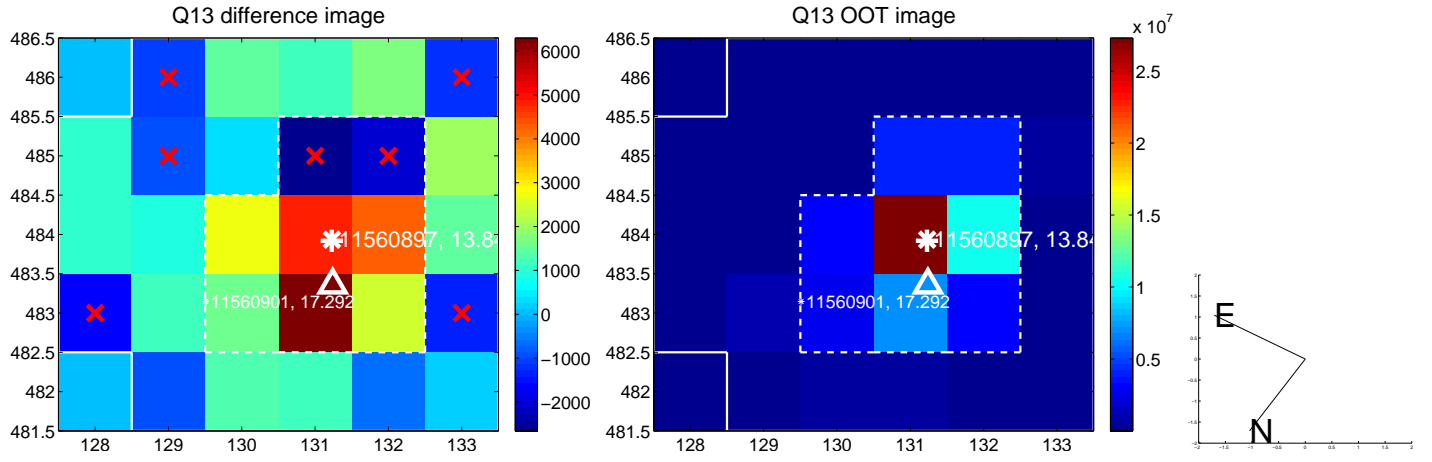
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



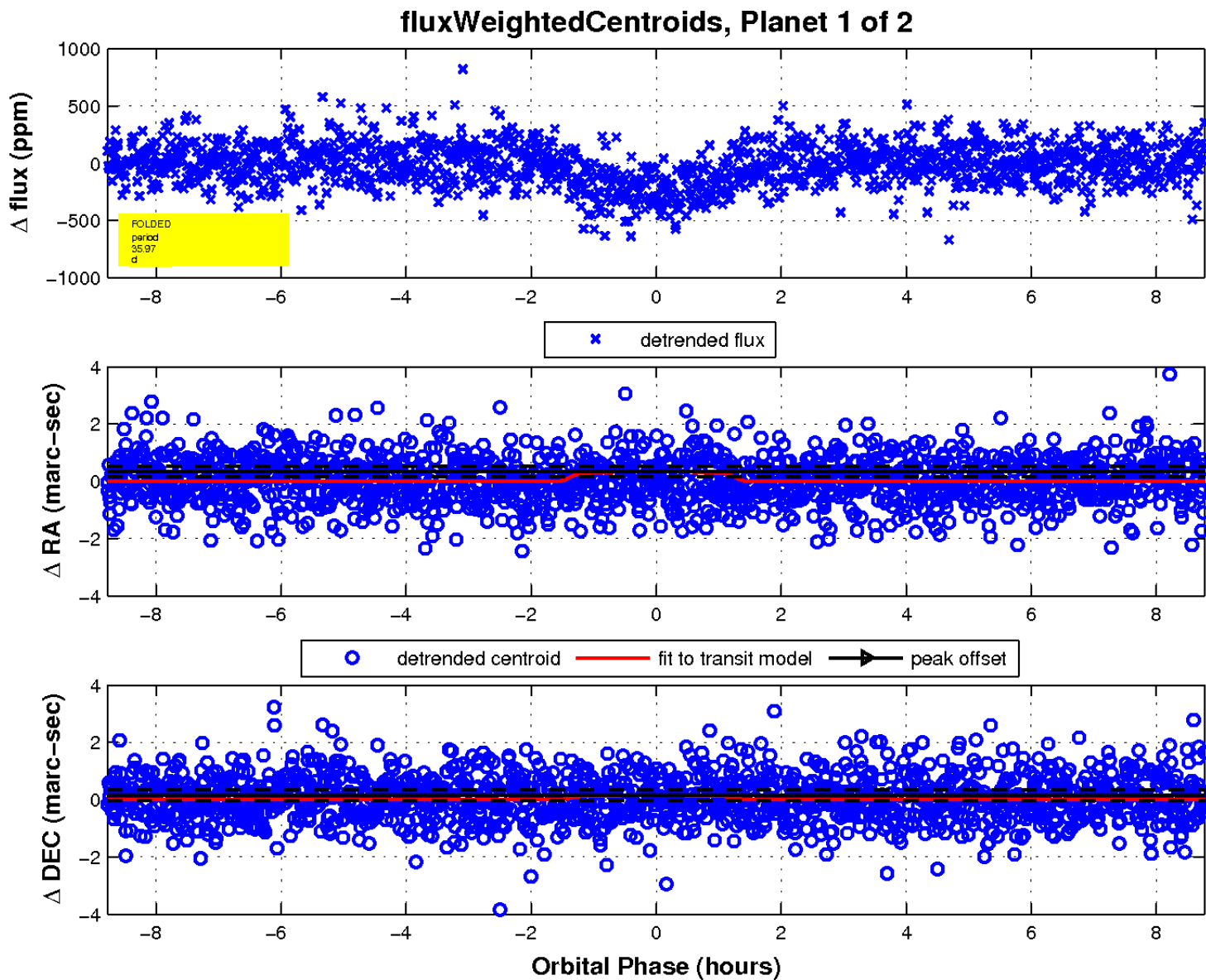
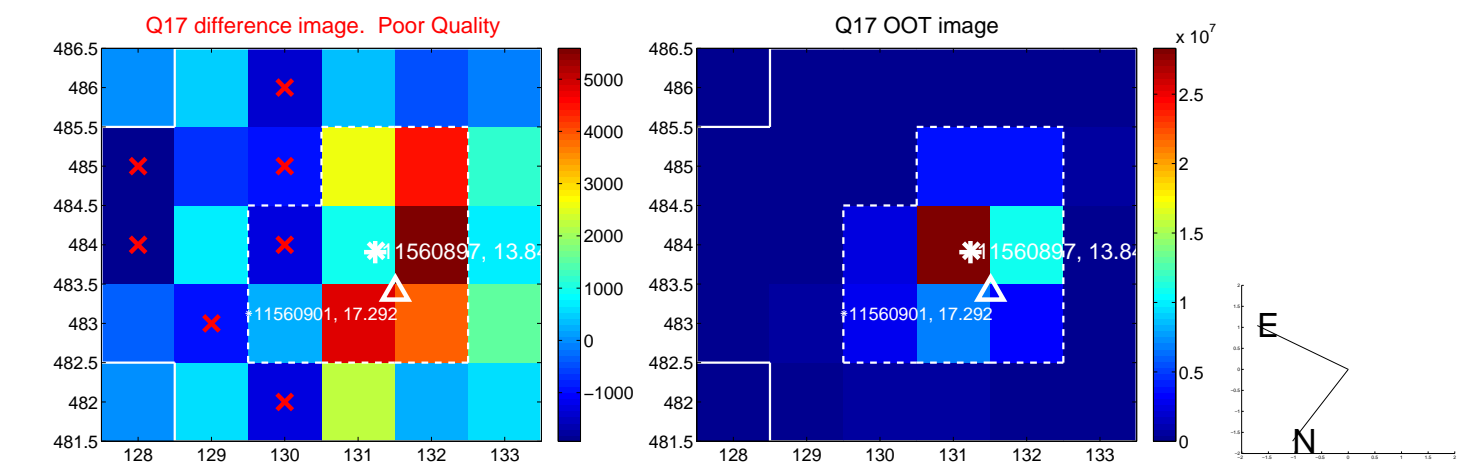
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

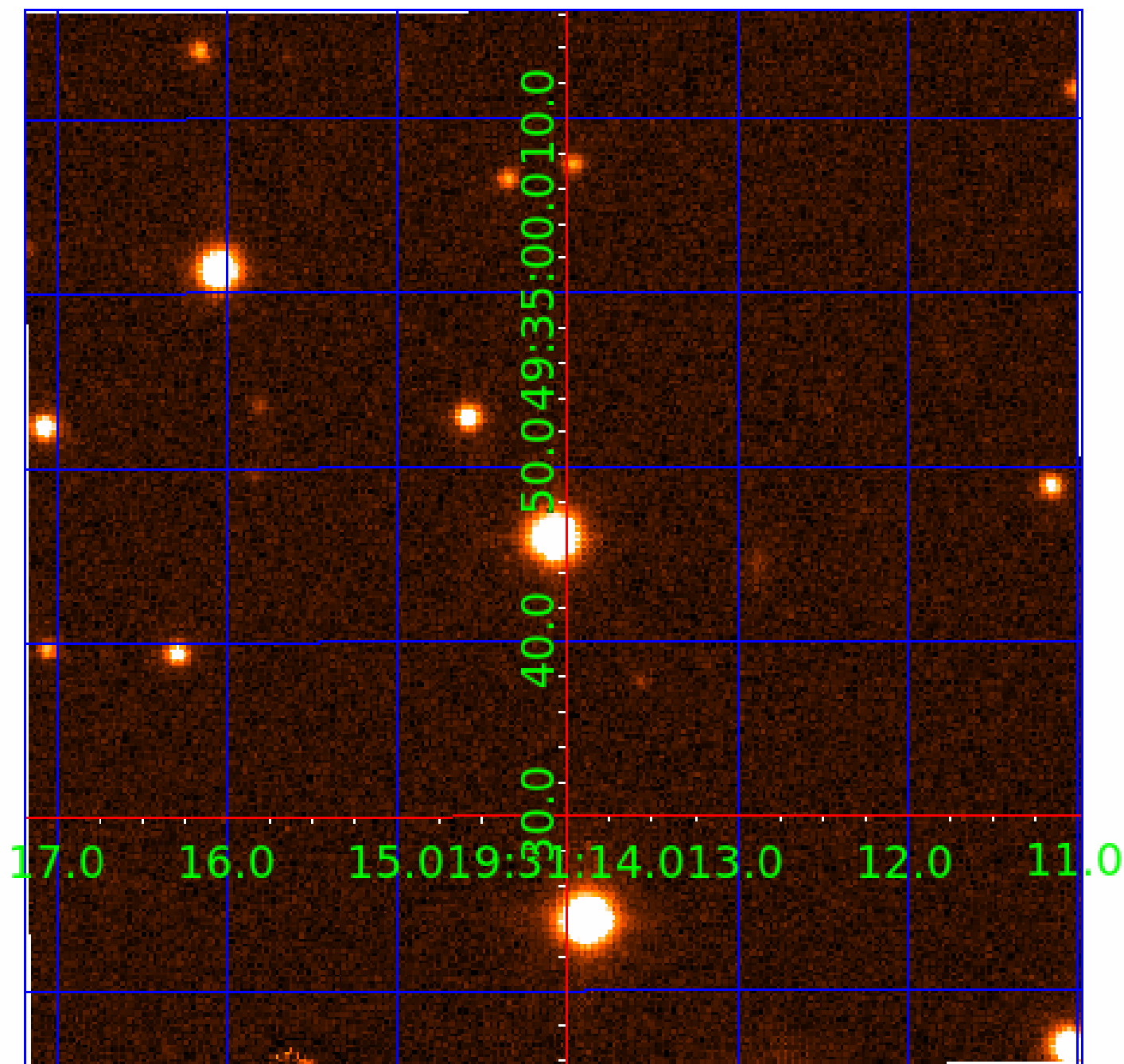


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011560897

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})
011560897-01	OBS	2365.01	35.968334	138.668208	255.5	2.928	18.1	19.1	1.53	5883	2.92	48.79
011560897-02	OBS	2365.02	110.979692	147.042827	139.5	13.016	10.8	10.3	1.53	5883	2.01	10.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011560897-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
011560897-02	OBS	PC	0.95	0	0	0	0	NO_COMMENT

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.

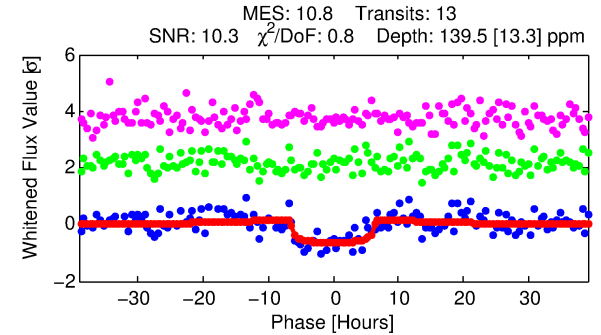
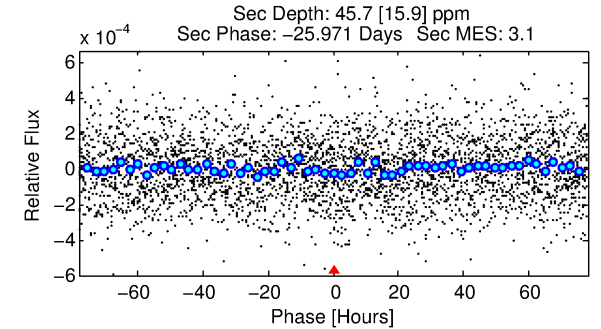
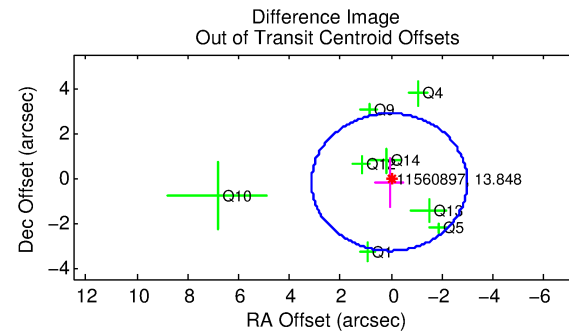
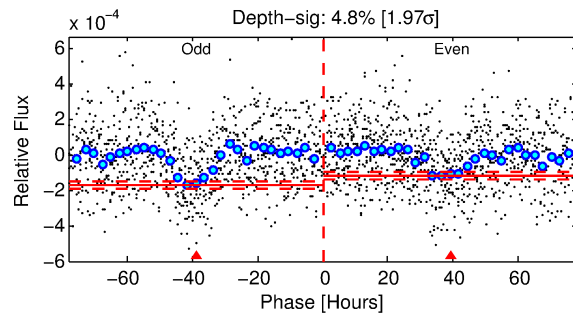
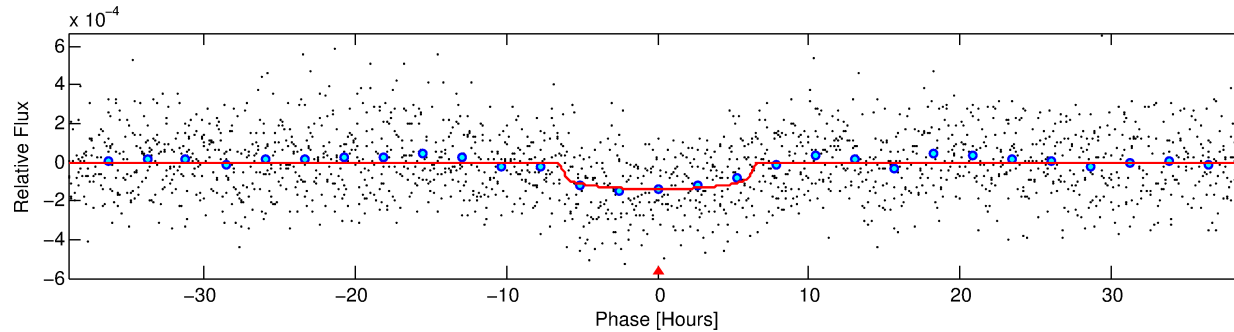
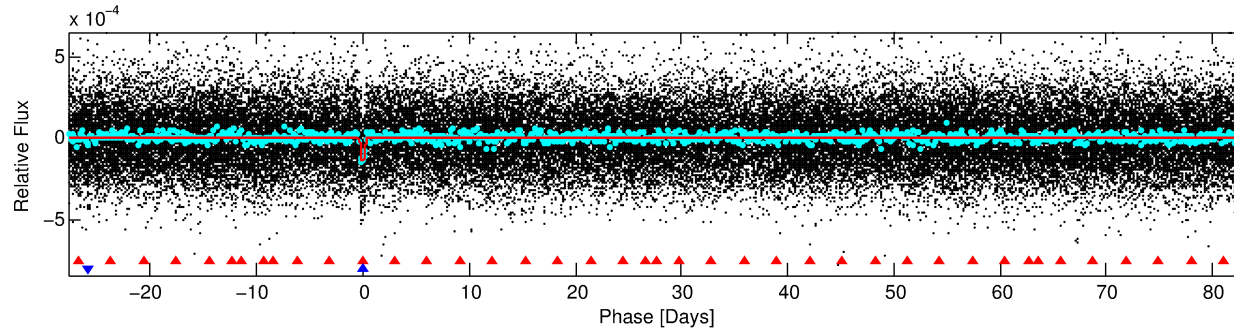
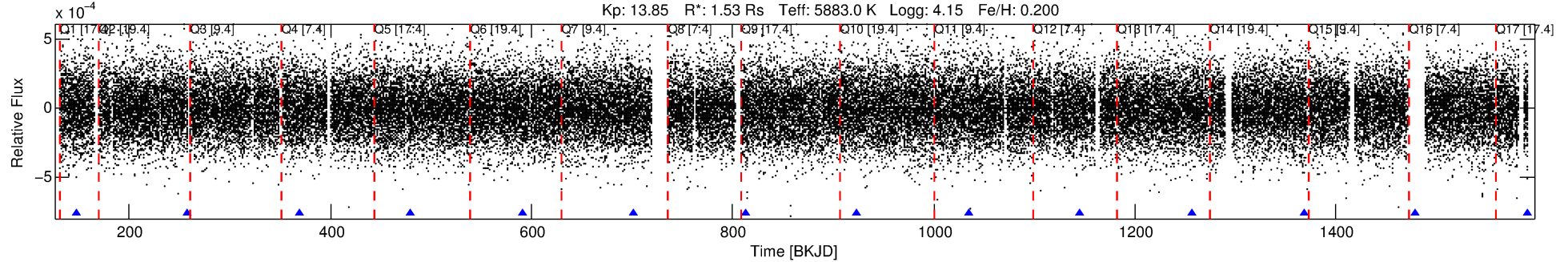
Ephemeris Match Information For 011560897-02

No Significant Match Found

DV One-Page Summary

KIC: 11560897 Candidate: 2 of 2 Period: 110.980 d
KOI: K02365.02 Name: Kepler-430c Corr: 0.943

Kp: 13.85 R*: 1.53 Rs Teff: 5883.0 K Logg: 4.15 Fe/H: 0.200



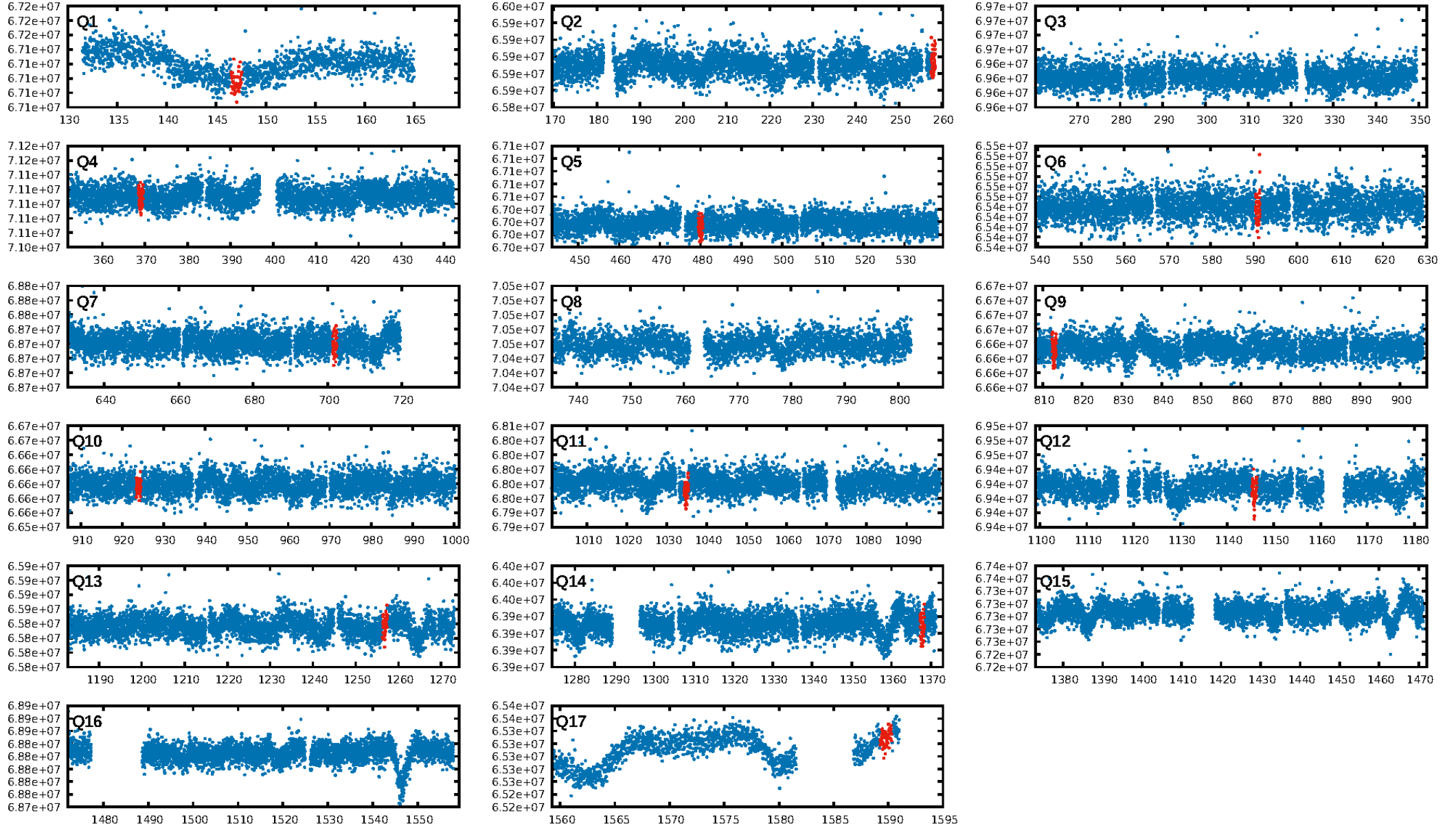
DV Fit Results:

Period = 110.97969 [0.00214] d
Epoch = 147.0428 [0.0156] BKJD
Rp/R* = 0.0121 [0.0037]
a/R* = 39.77 [55.13]
b = 0.81 [0.60]
Seff = 10.86 [3.34]
Teq = 463 [36] K
Rp = 2.01 [0.74] Re
a = 0.4806 [0.0923] AU
Ag = 1437.05 [1097.36] [1.31σ]
Teff = 4407 [775] K [5.09σ]

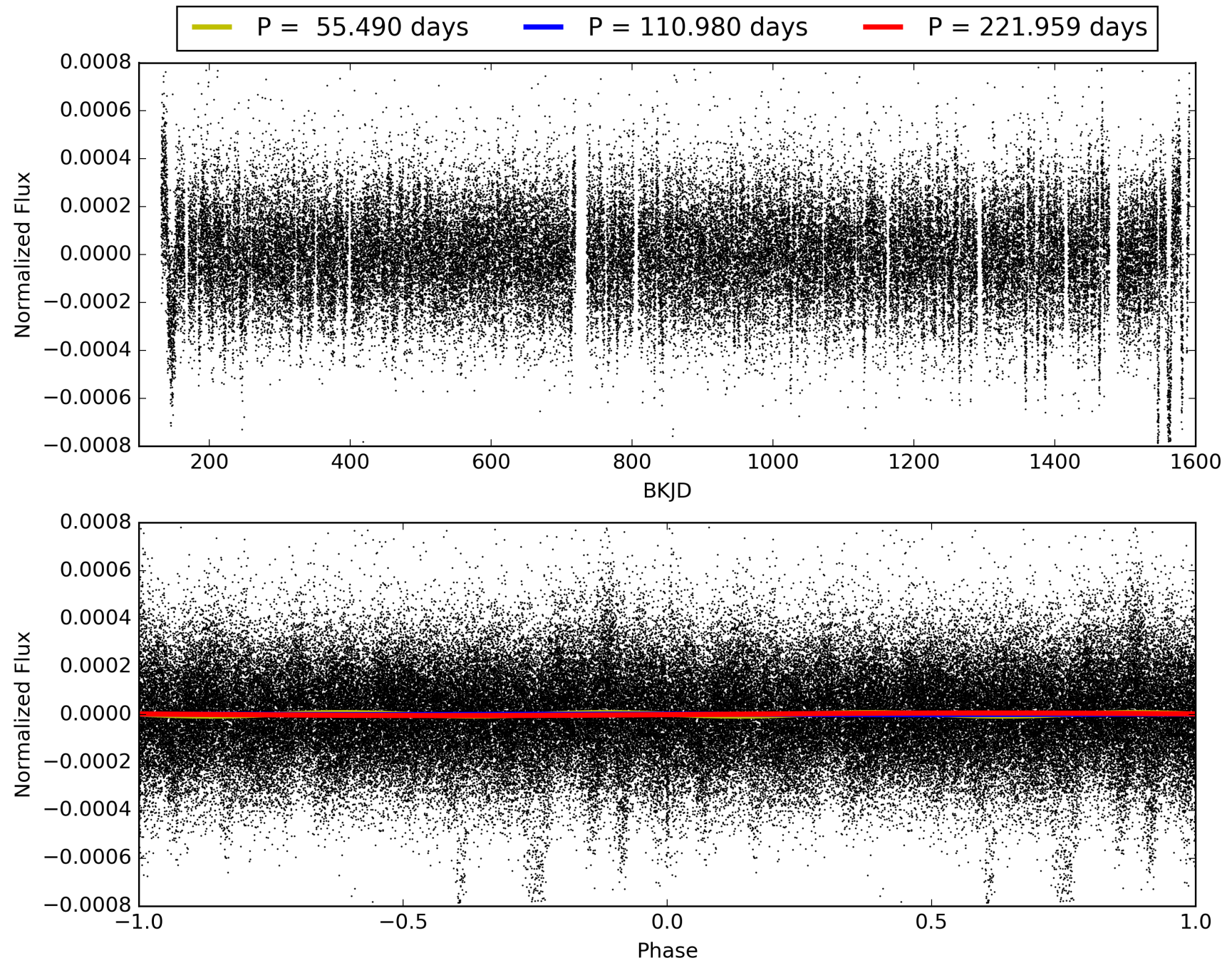
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [134.94σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 60.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.15e-25
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: 22.64
Centroid-sig: 1.4%
Centroid-so: 2.336 arcsec [2.22σ]
OotOffset-rm: 0.203 arcsec [0.20σ]
KicOffset-rm: 0.132 arcsec [0.13σ]
OotOffset-st: 2/0/2/4 [8]
KicOffset-st: 2/0/2/4 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 0.91 [10/11]

TCE 011560897-02, PDC Light Curves

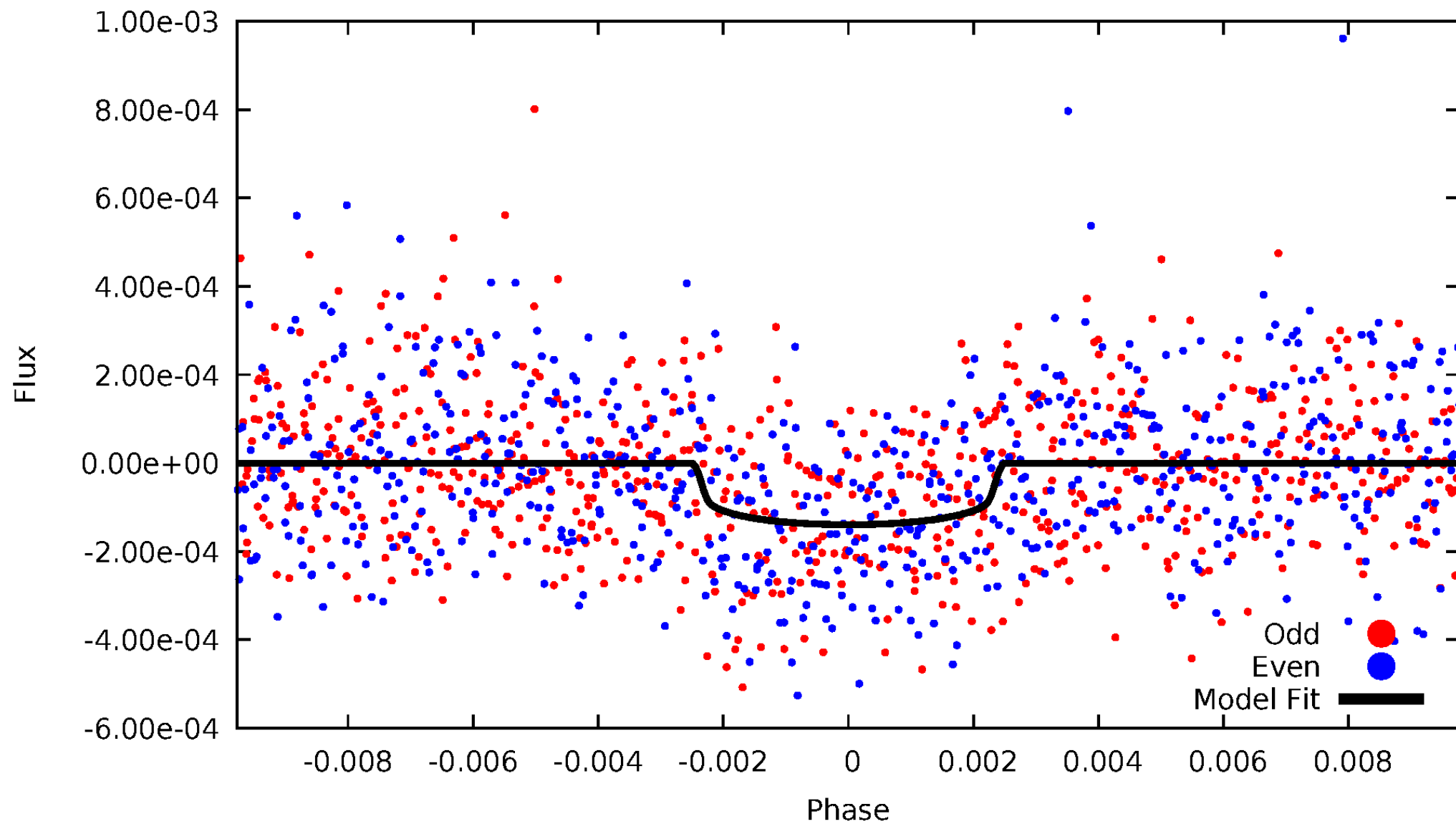


TCE 011560897-02



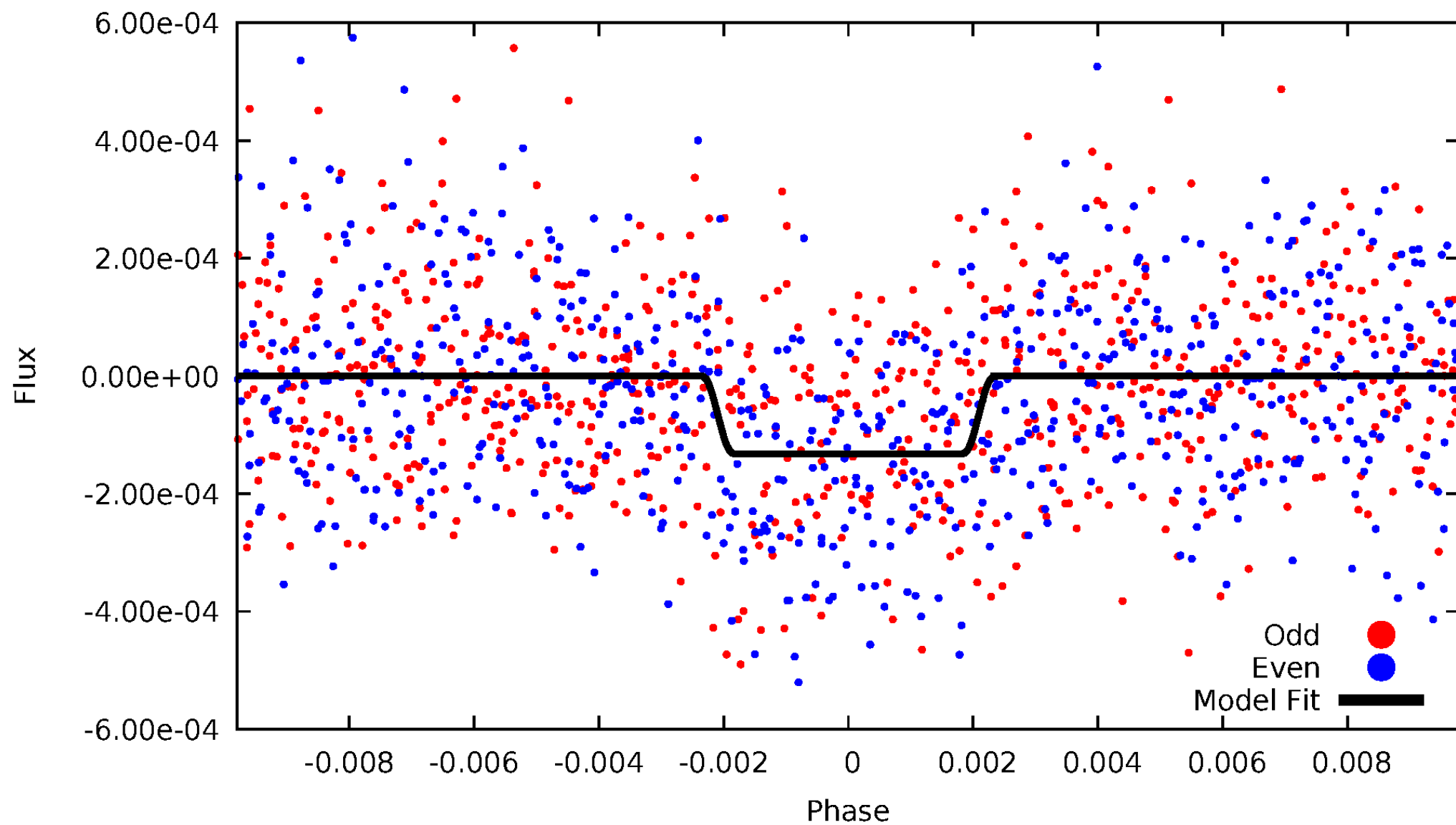
DV Odd/Even

TCE 011560897-02



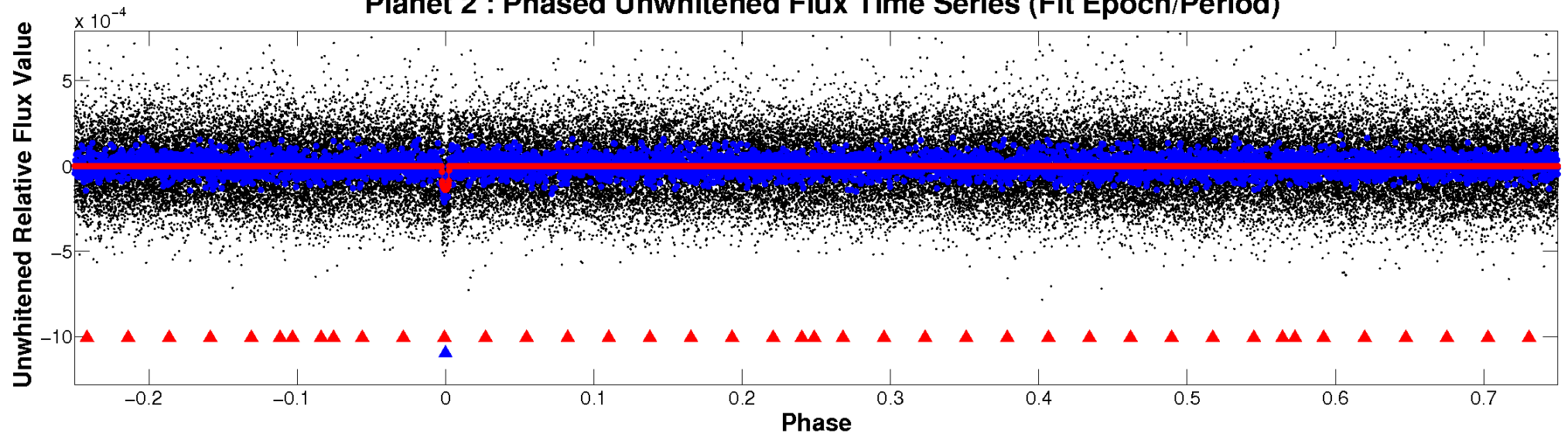
ALT Odd/Even

TCE 011560897-02

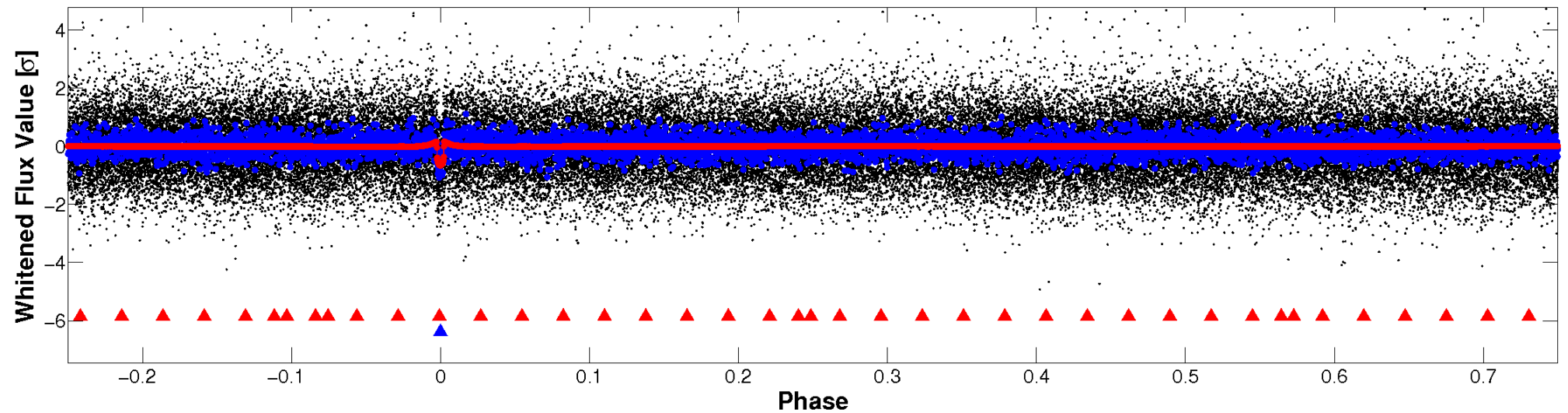


Non-Whitened Vs. Whitened Light Curve

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

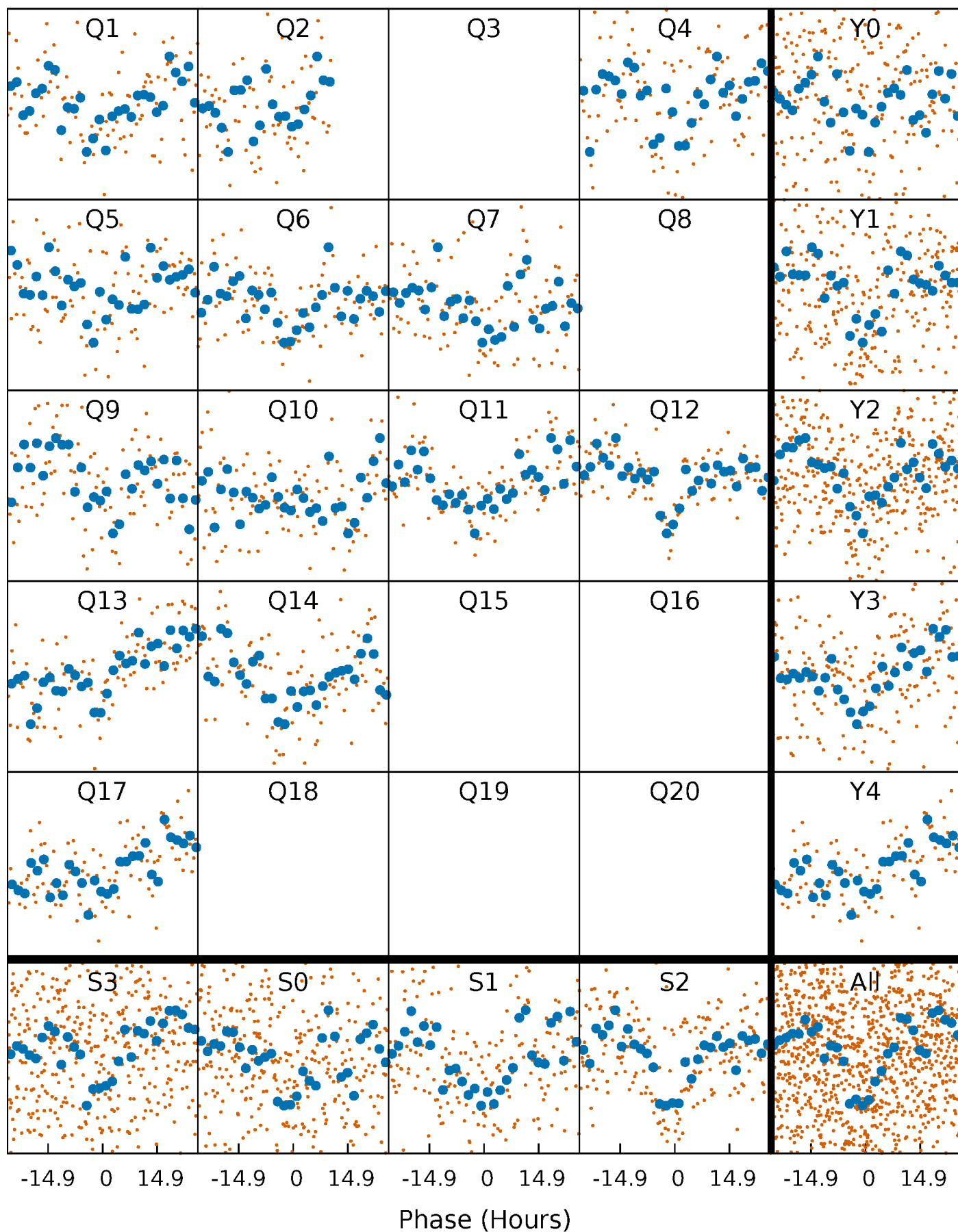


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



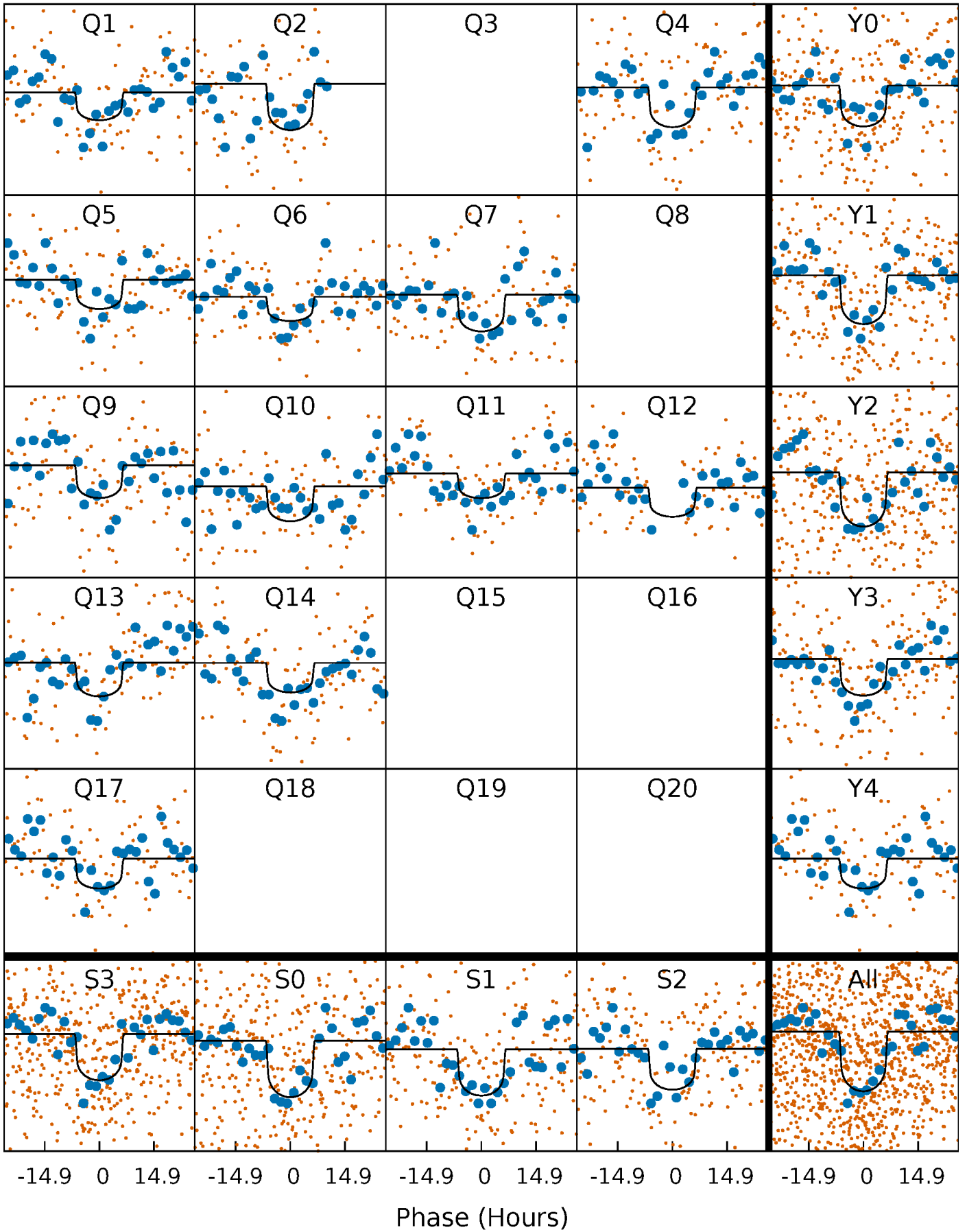
PDC Quarter-Phased Transit Curves

TCE 011560897-02 P=110.979692 Days $T_0=147.042827$ (BKJD)



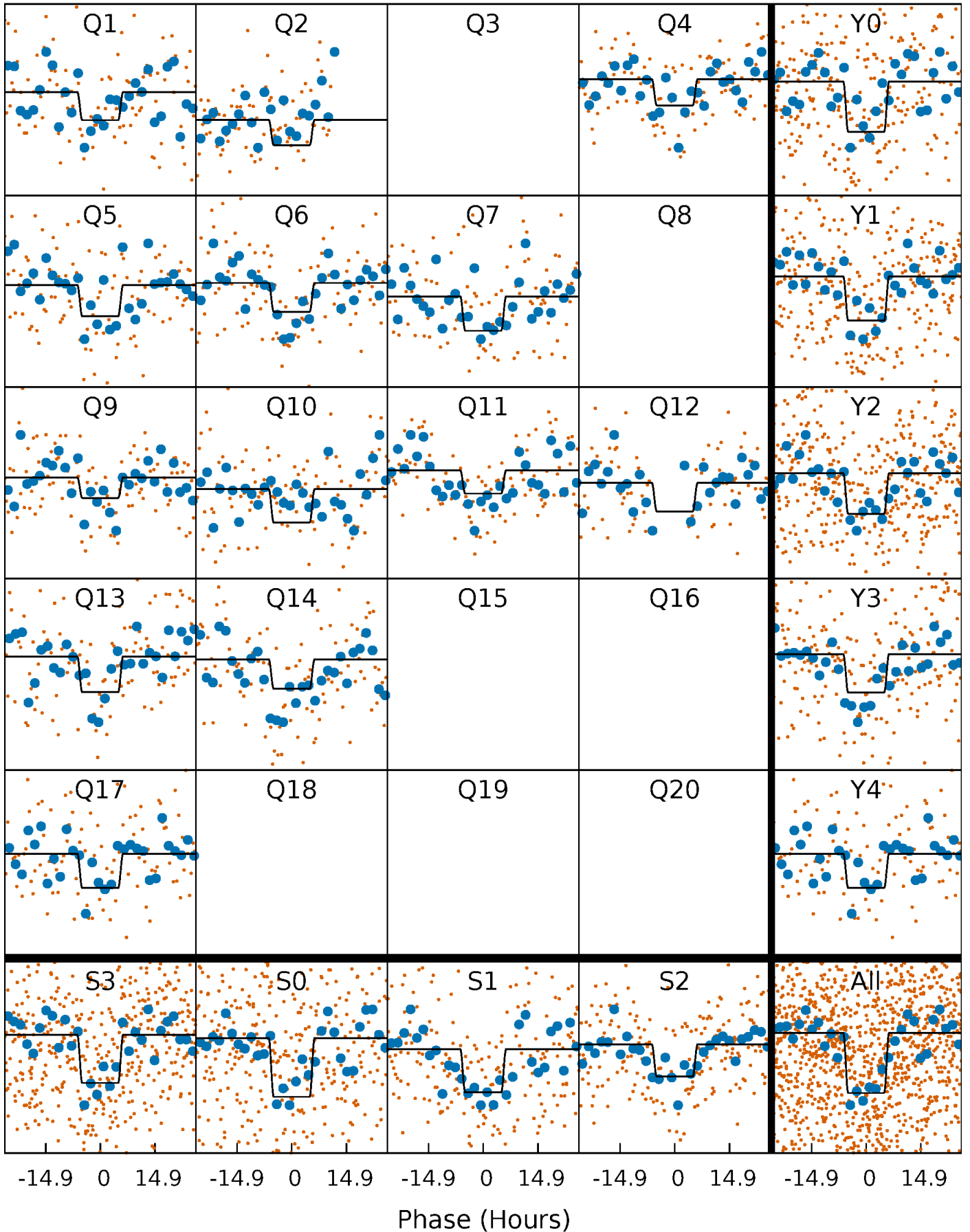
DV Quarter-Phased Transit Curves

TCE 011560897-02 P=110.979692 Days $T_0=147.042827$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

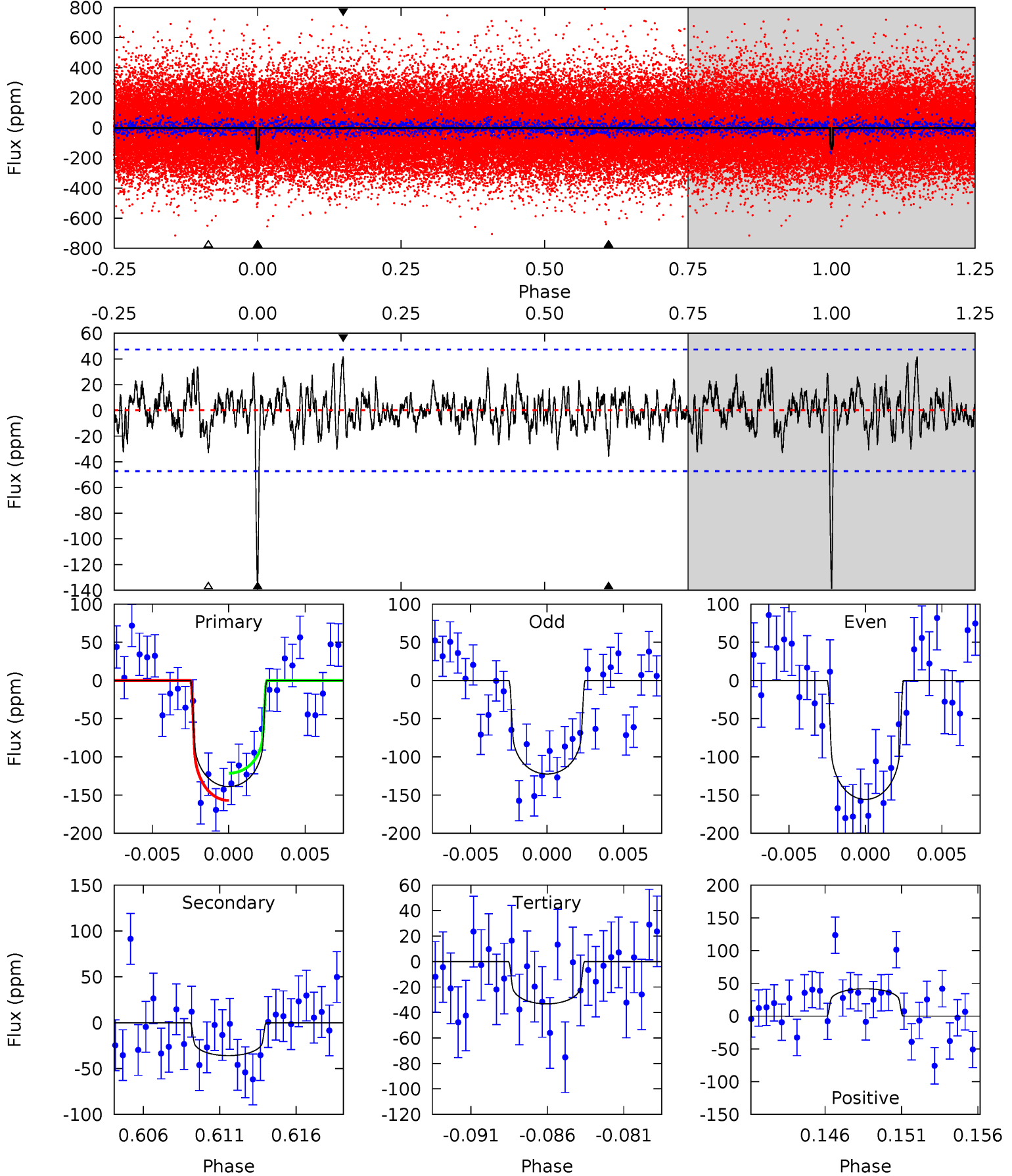
TCE 011560897-02 $P=110.981476$ Days $T_0=147.023451$ (BKJD)



DV Model-Shift Uniqueness Test

011560897-02, P = 110.979692 Days, E = 36.063135 Days

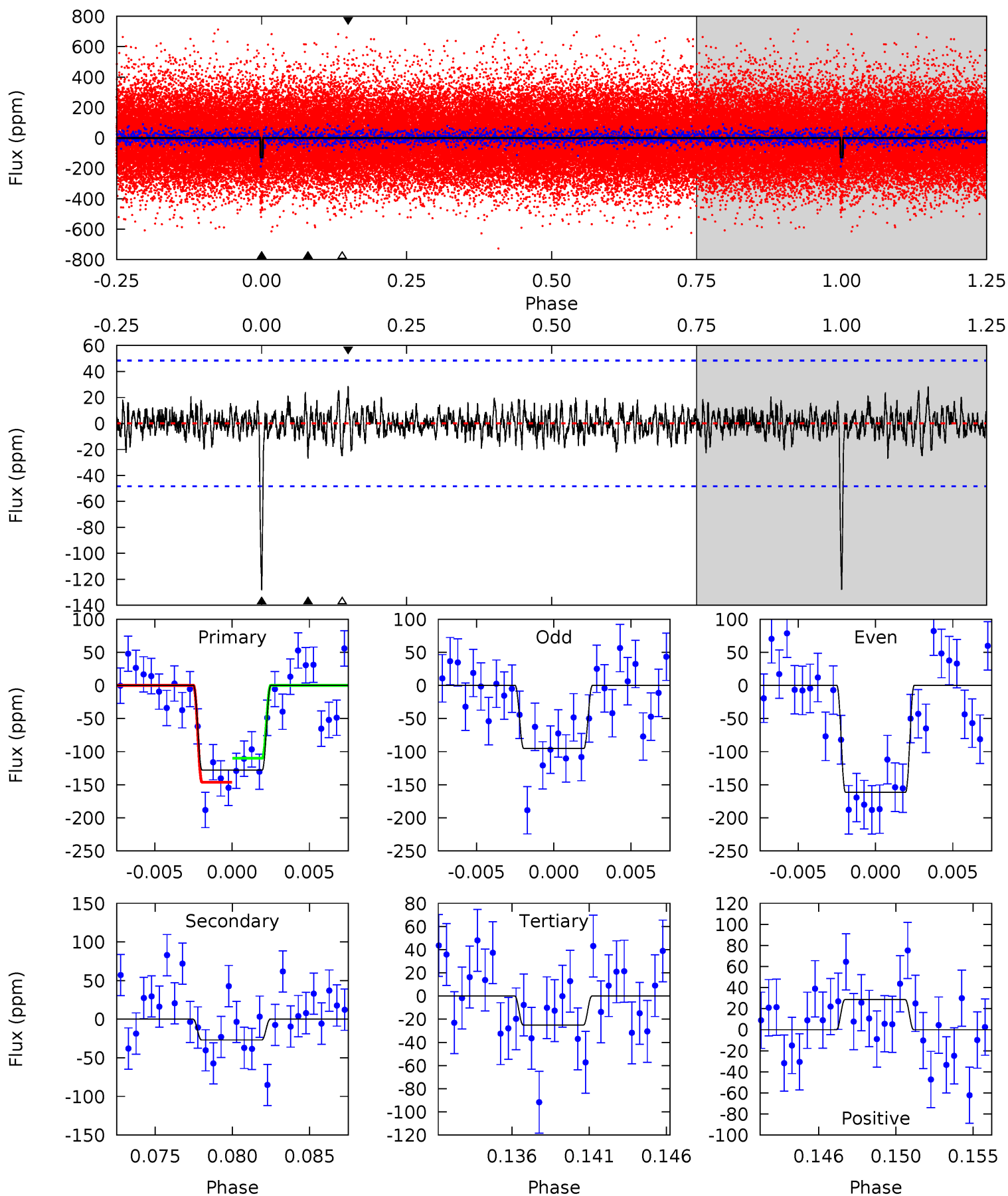
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	3.91	3.62	4.55	5.16	2.80	1.23	11.5	10.6	0.29	-0.64	1.81	1.04	0.23	1.95



Alt Model-Shift Uniqueness Test

011560897-02, $P = 110.981476$ Days, $E = 36.041975$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	2.88	2.68	3.06	5.17	2.83	0.81	11.0	10.6	0.20	-0.18	3.54	0.93	0.18	1.94



Stellar Parameters For KIC 011560897

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5883^{+79}_{-79}	$4.149^{+0.176}_{-0.095}$	$0.200^{+0.150}_{-0.150}$	$1.529^{+0.256}_{-0.313}$	$1.205^{+0.089}_{-0.145}$	$0.475^{+0.406}_{-0.162}$
	+1%/-1%	+4%/-2%	+75%/-75%	+17%/-20%	+7%/-12%	+85%/-34%
Source	SPE84	SPE84	SPE84	DSEP		

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

Secondary Eclipse Parameters for KIC 011560897-02 / KOI 2365.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-36 ± 9	$1.96^{+0.68}_{-0.61}$	642^{+29}_{-37}	4316^{+725}_{-434}	1183^{+1262}_{-569}
Alt.	-27 ± 9	$1.88^{+0.65}_{-0.59}$	643^{+28}_{-32}	4185^{+734}_{-505}	936^{+1202}_{-485}

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 $A_{obs} \gg 1.0$

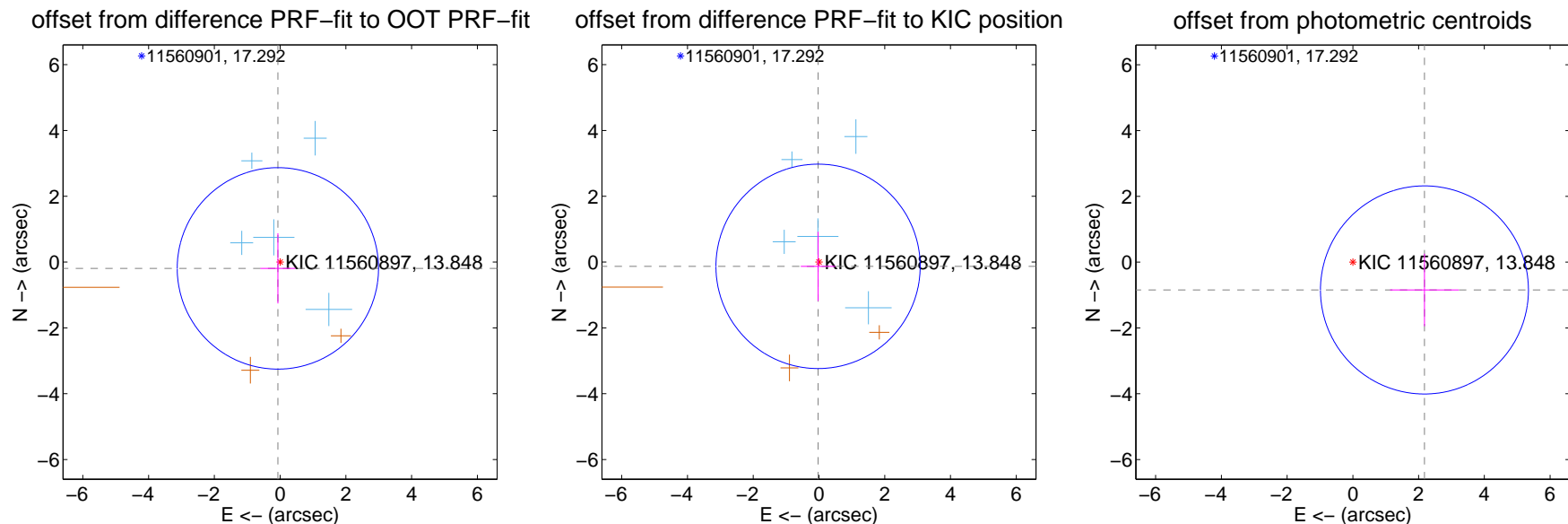
DV Centroid Data

Supplemental centroid analysis for 011560897-02. Kepler magnitude: 13.85. Transit SNR 10.29

There are 5 quarters with good PRF difference image offsets

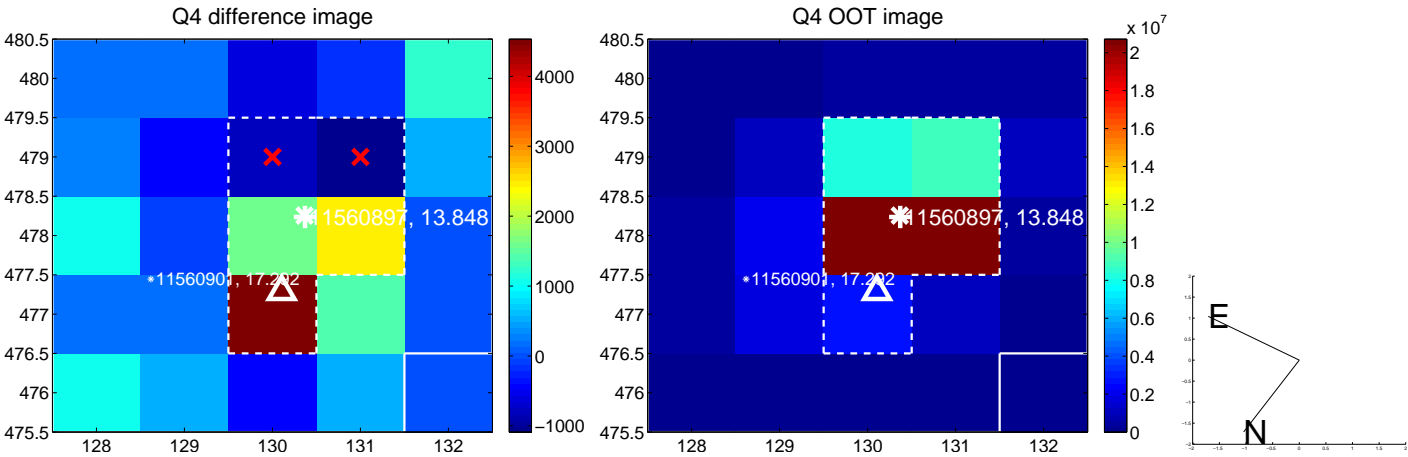
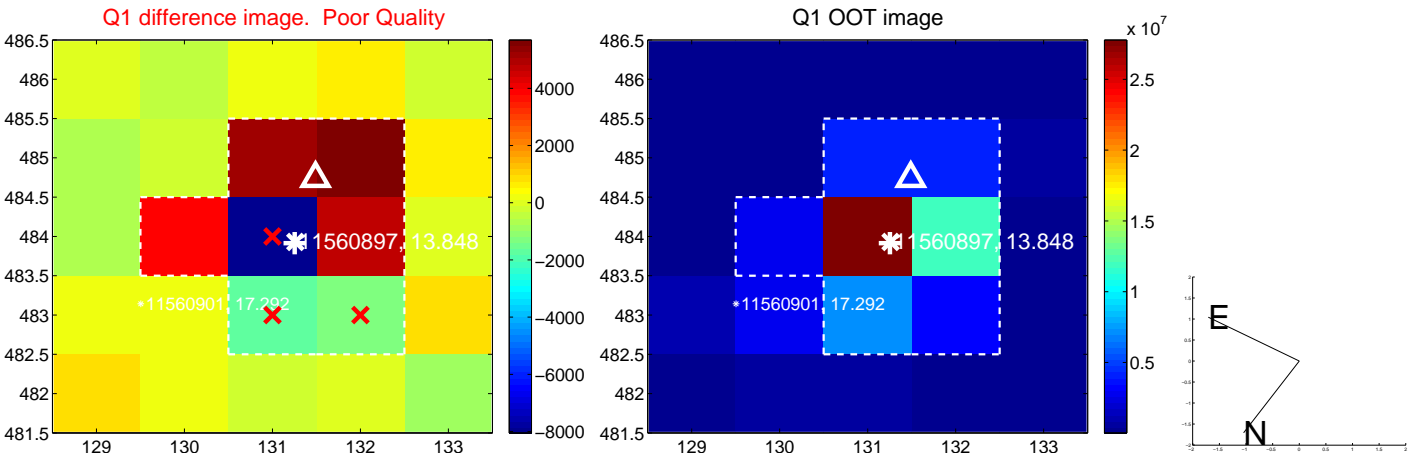
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.203 ± 1.020	0.20	0.068 ± 0.531	-0.191 ± 1.067
PRF-fit source offset from KIC position	0.132 ± 1.035	0.13	0.028 ± 0.526	-0.130 ± 1.053
photometric centroid source offset	2.34 ± 1.05	2.22	-2.18 ± 1.05	-0.84 ± 1.10

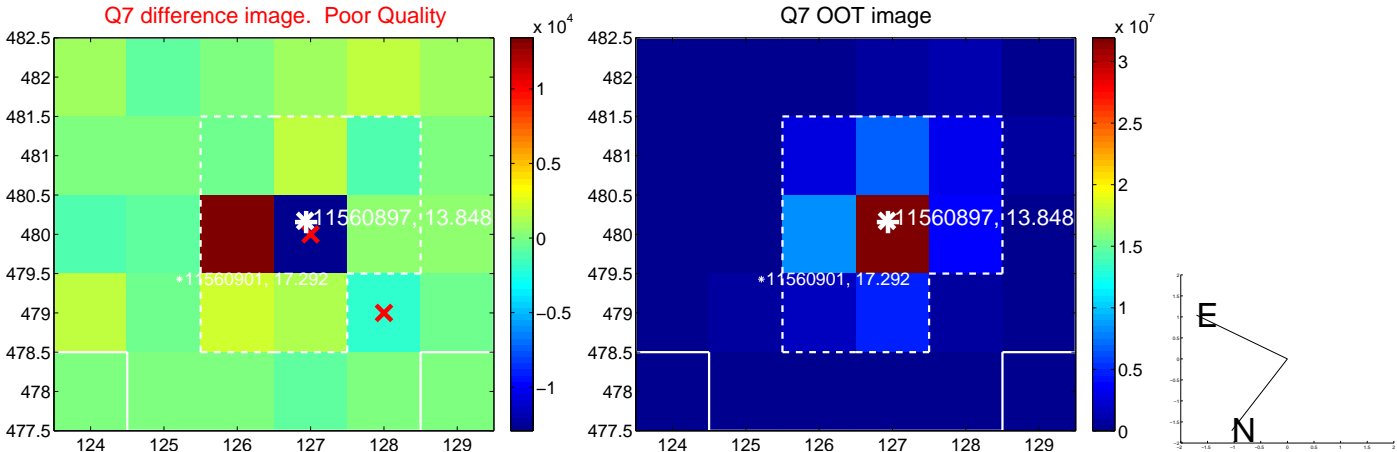
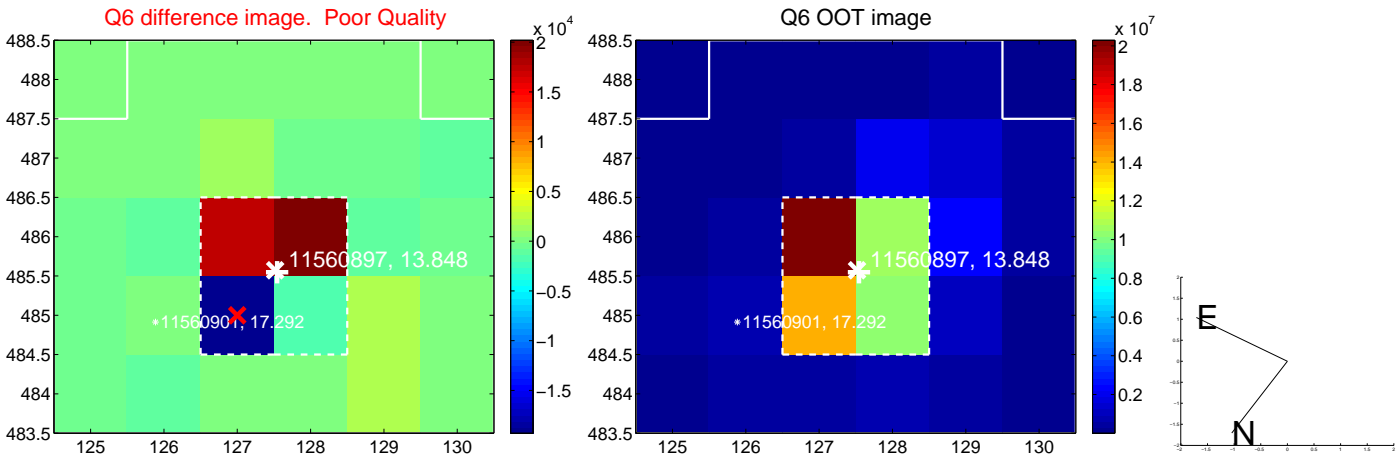
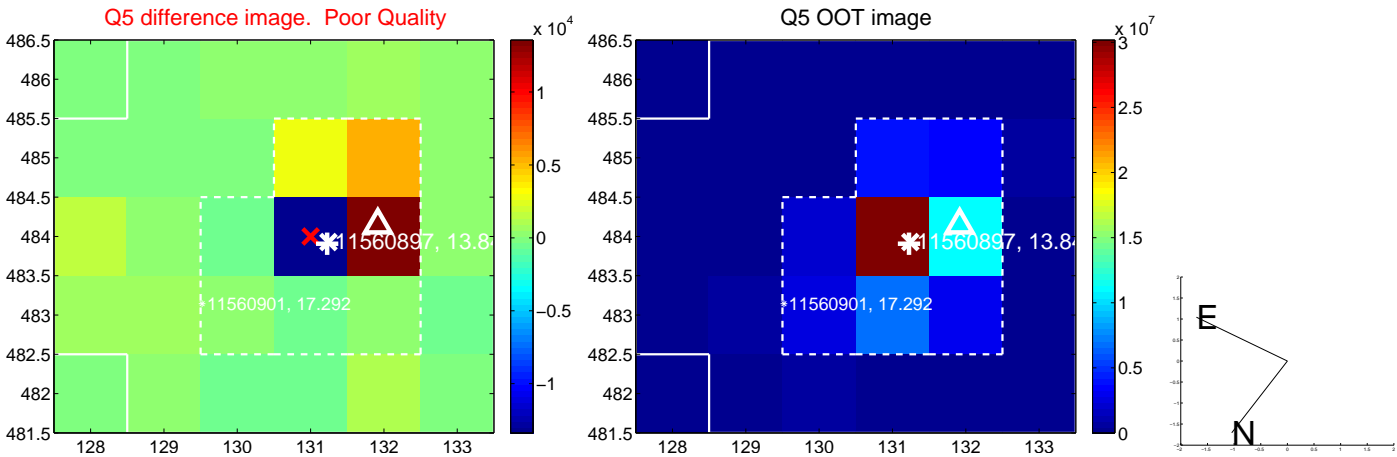


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

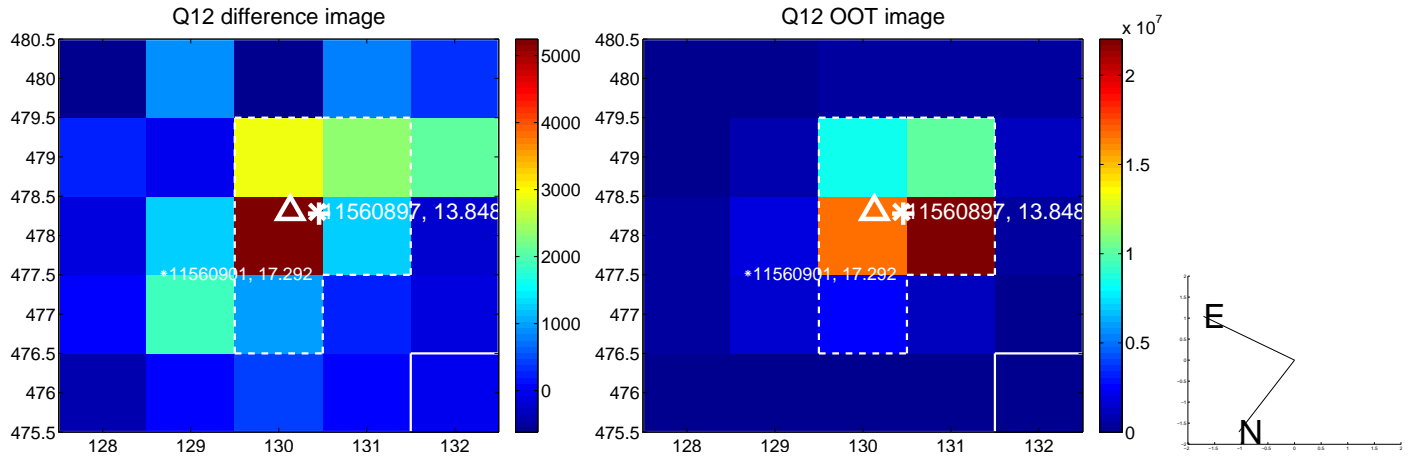
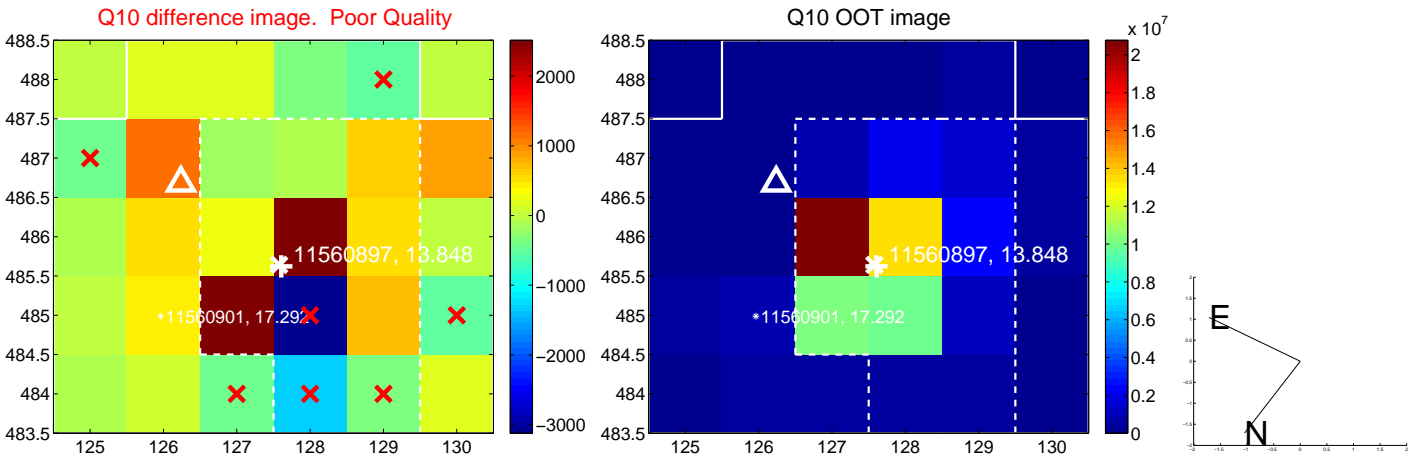
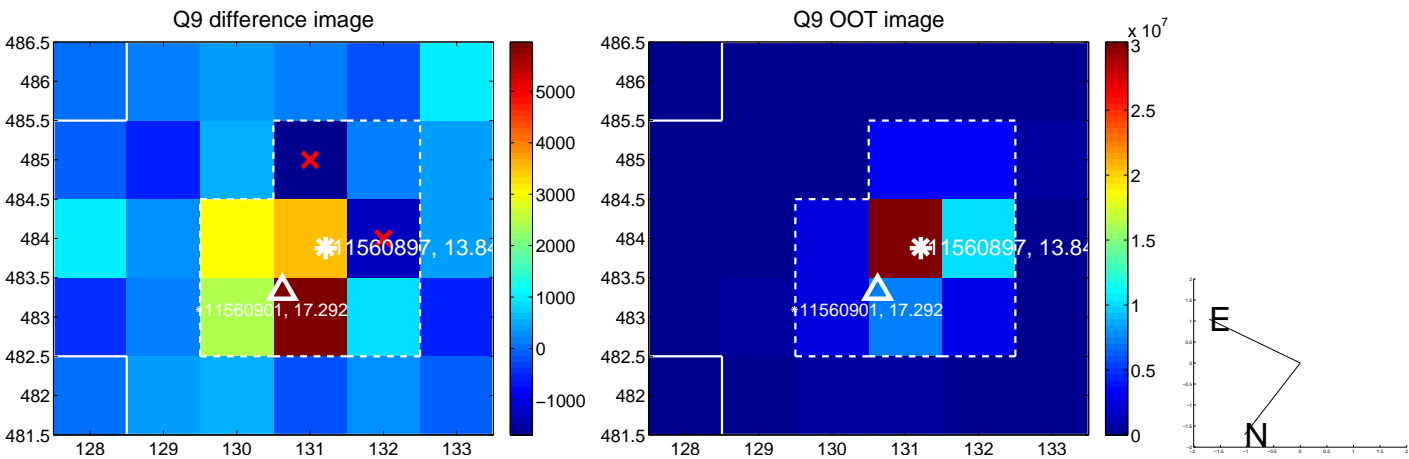
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



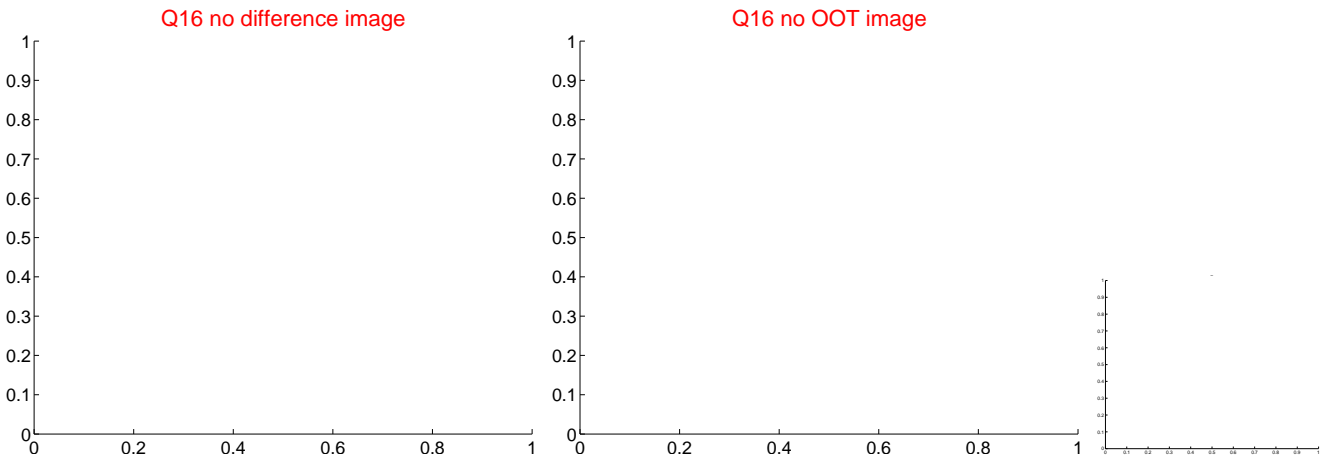
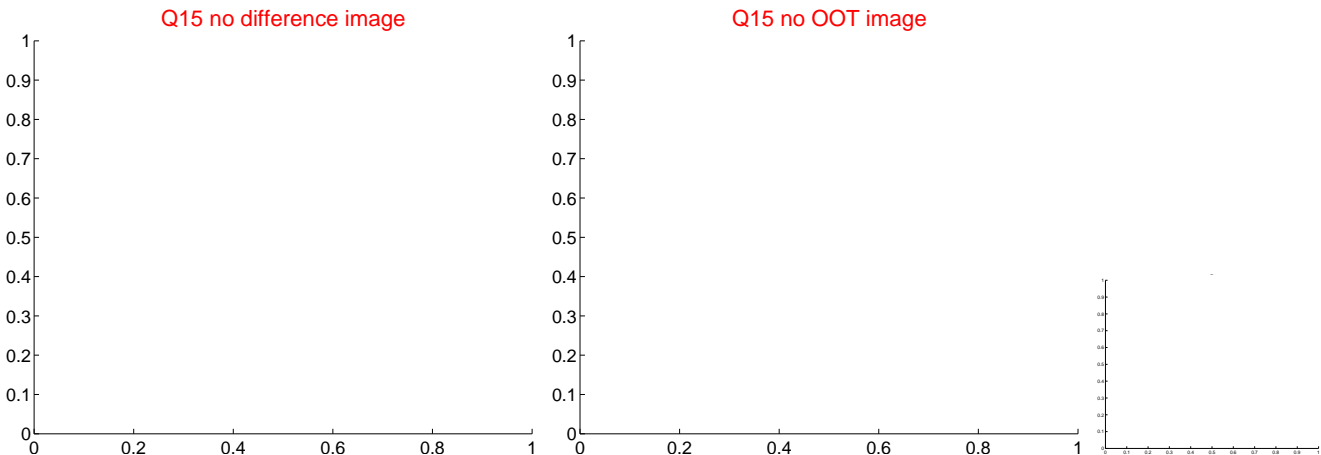
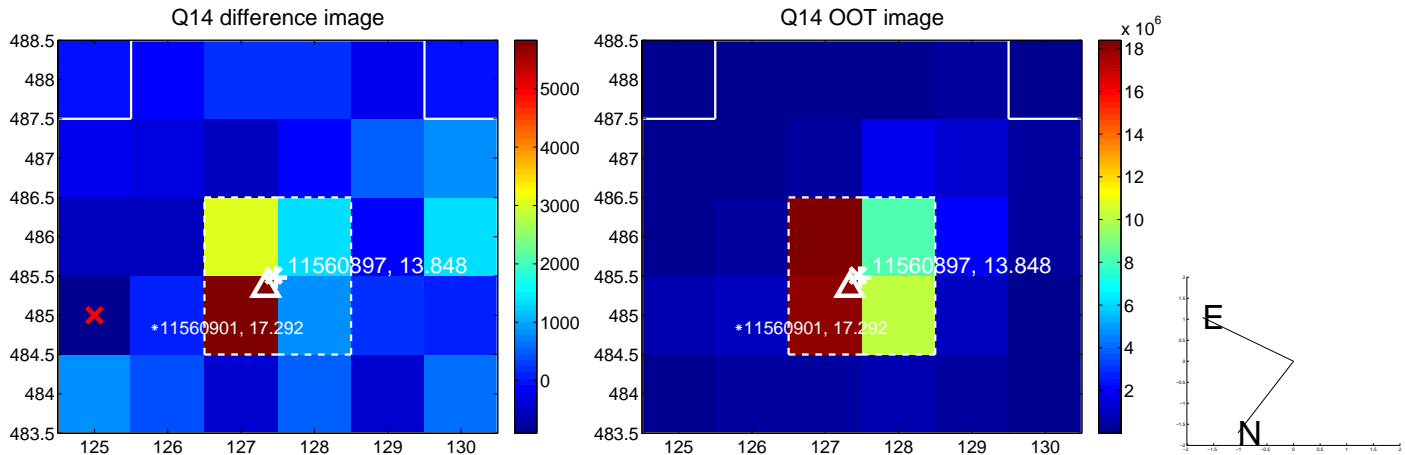
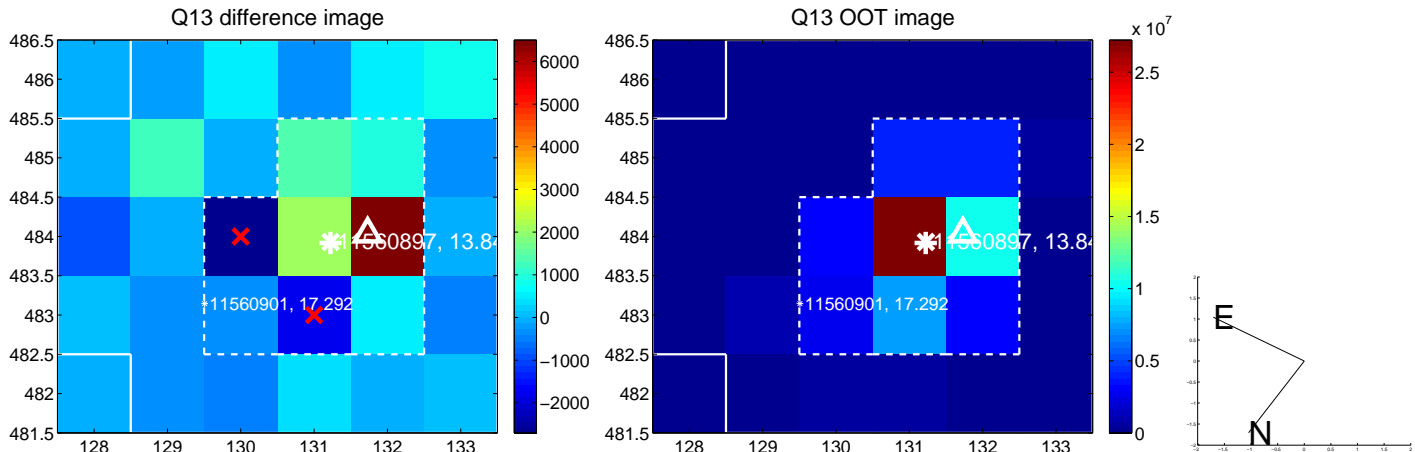
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



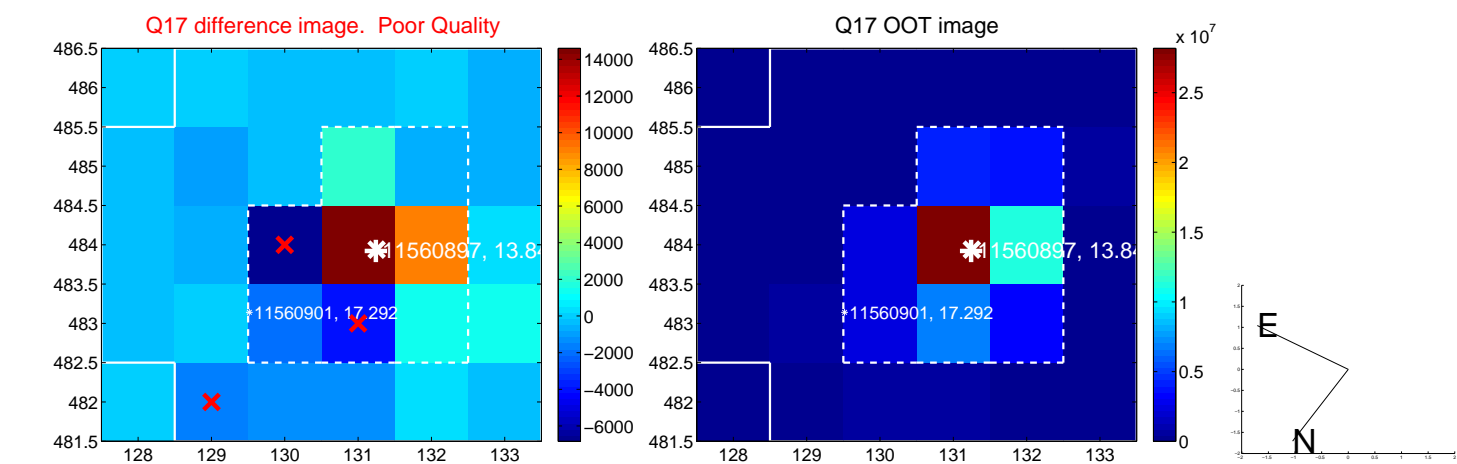
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



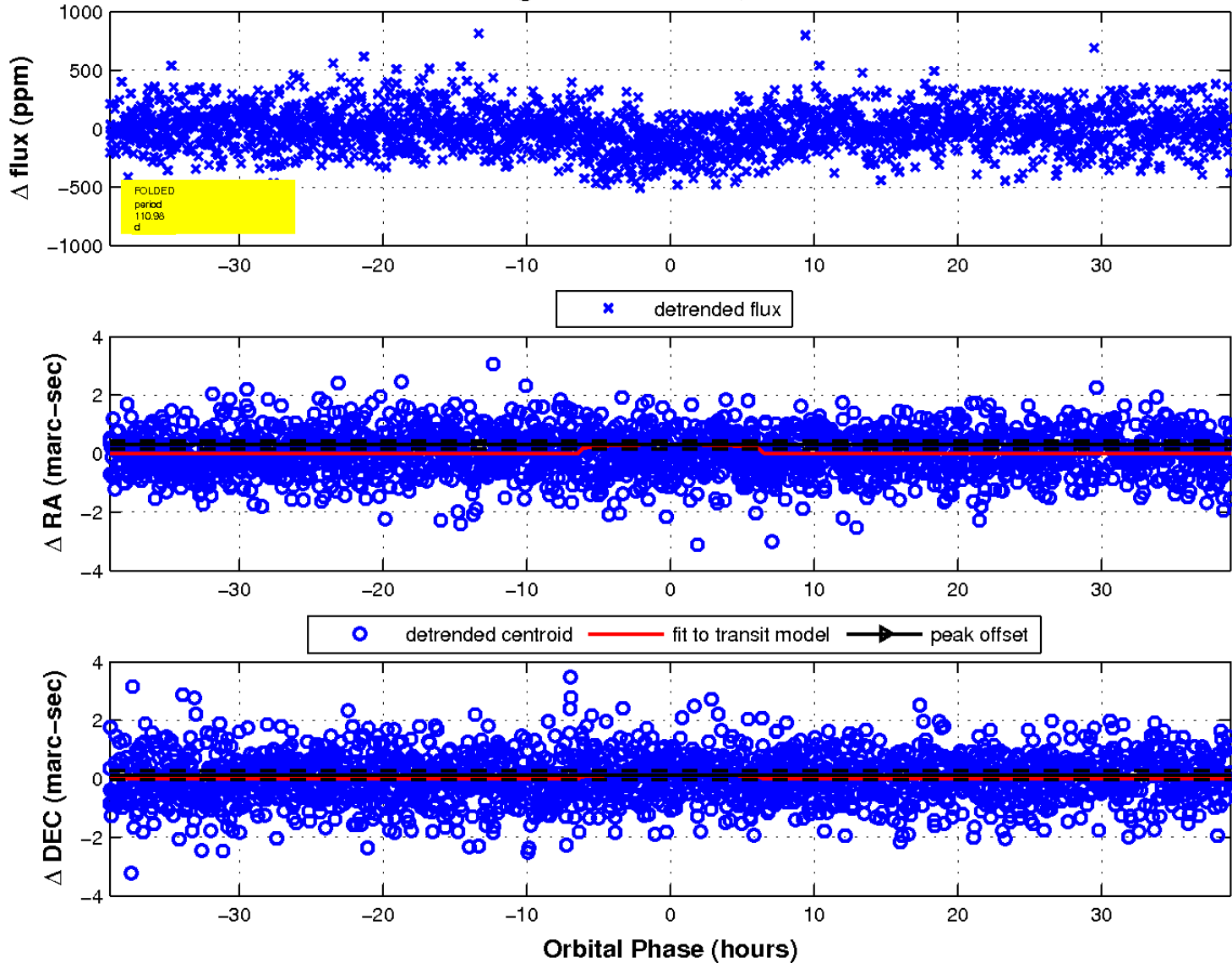
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

