

KIC 009428899

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})
009428899-01	OBS	No	5.522720	132.658826	20.9	19.896	8.3	7.3	1.25	6558	0.62	596.37
009428899-02	OBS	No	5.519898	134.298343	0.0	47.704	8.4	0.0	1.25	6558	0.00	596.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009428899-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009428899-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

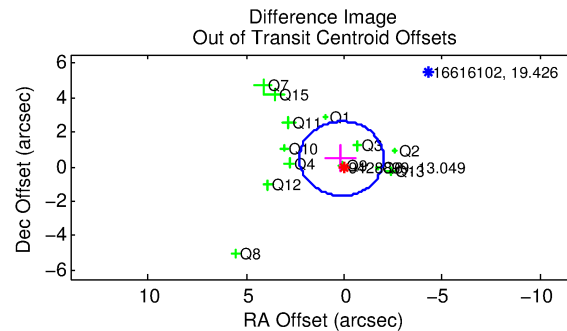
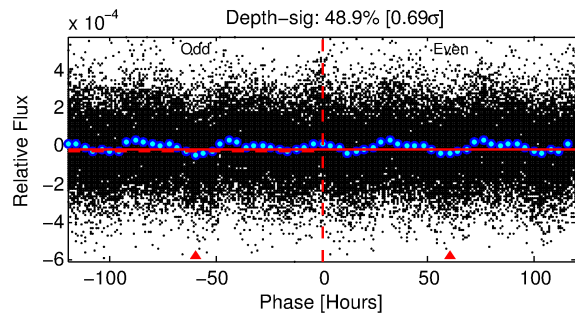
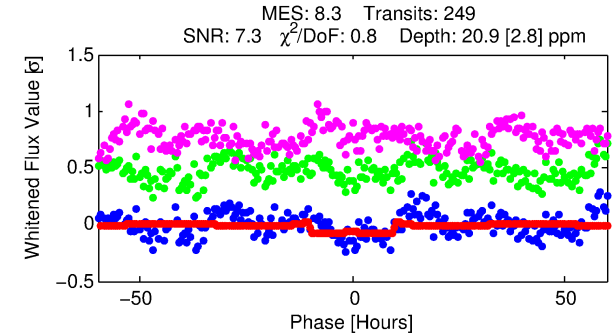
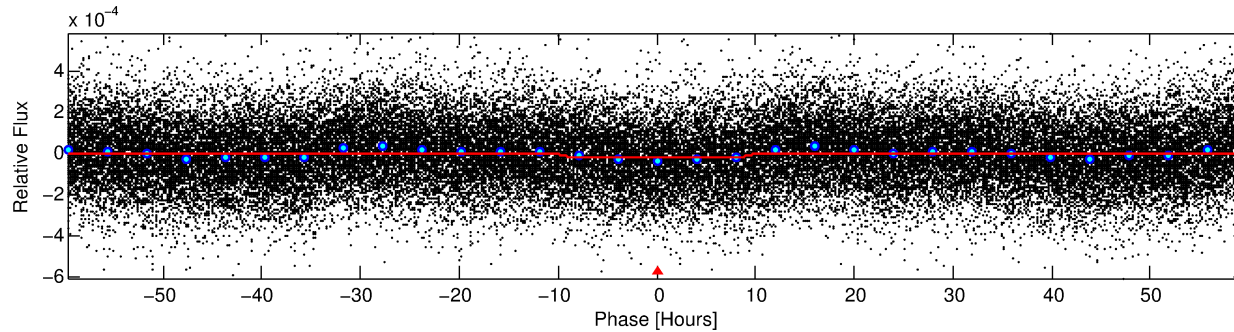
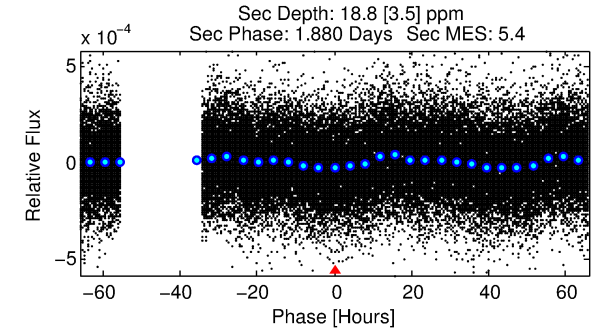
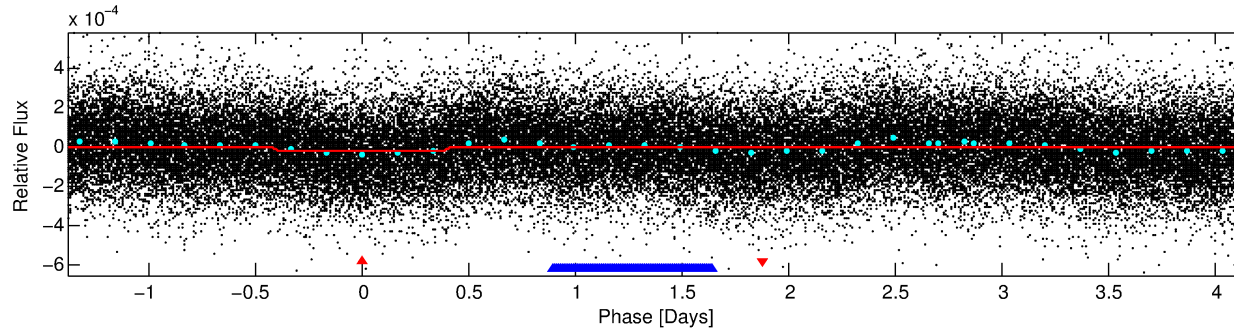
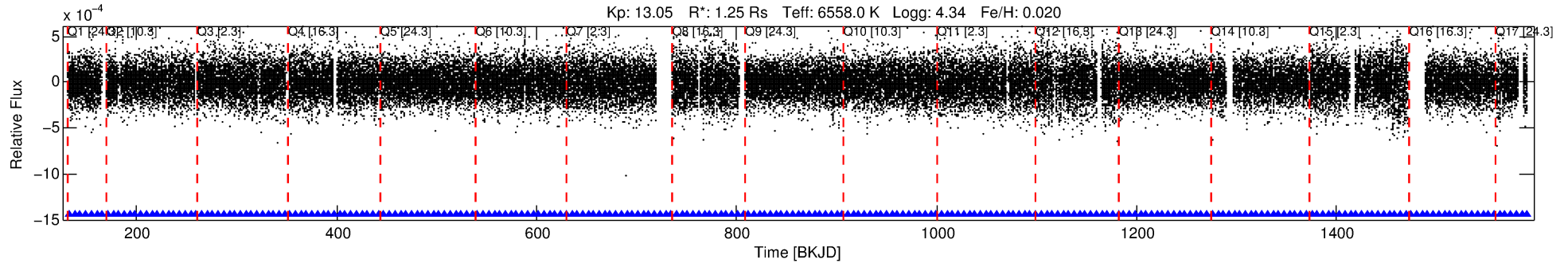
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009428899-01

No Significant Match Found

DV One-Page Summary

KIC: 9428899 Candidate: 1 of 2 Period: 5.523 d



DV Fit Results:

Period = 5.52272 [0.00012] d
Epoch = 132.6588 [0.0161] BKJD
Rp/R* = 0.0045 [0.0012]
a/R* = 1.69 [1.53]
b = 0.73 [0.90]
Seff = 596.37 [258.04]
Teff = 1260 [136] K
Rp = 0.62 [0.28] Re
a = 0.0660 [0.0195] AU
Ag = 118.22 [81.77] [1.43σ]
Teffp = 6424 [916] K [5.58σ]

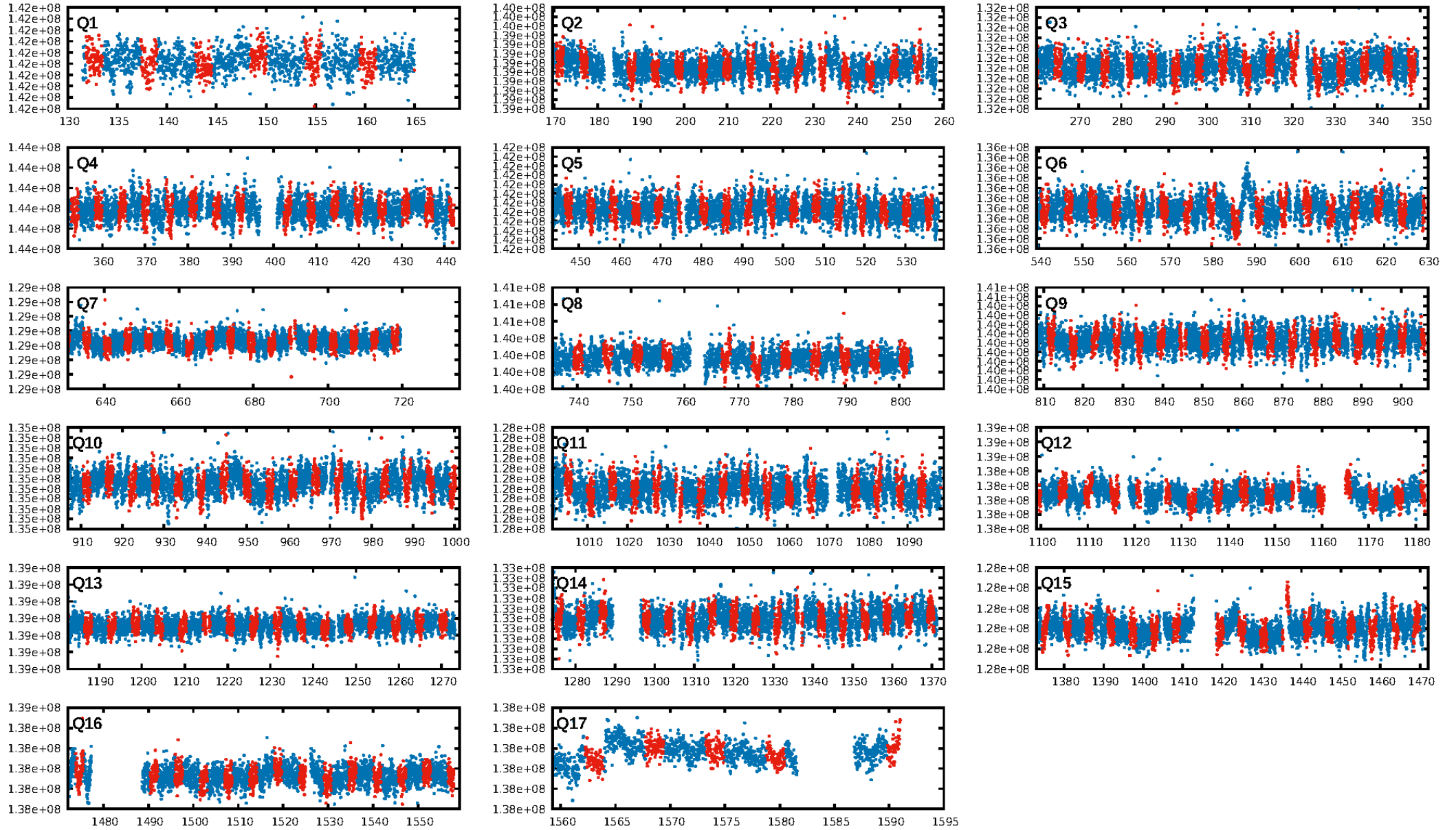
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [238/238]
GhostDiagnostic-chr: 1.933
Centroid-sig: 0.8%
Centroid-so: 1.384 arcsec [0.81σ]
OotOffset-rm: 0.489 arcsec [0.68σ]
KicOffset-rm: 0.614 arcsec [0.95σ]
OotOffset-st: 3/4/3/3 [13]
KicOffset-st: 3/4/3/3 [13]
DiffImageQuality-fgm: 0.46 [6/13]
DiffImageOverlap-fno: 0.00 [0/17]

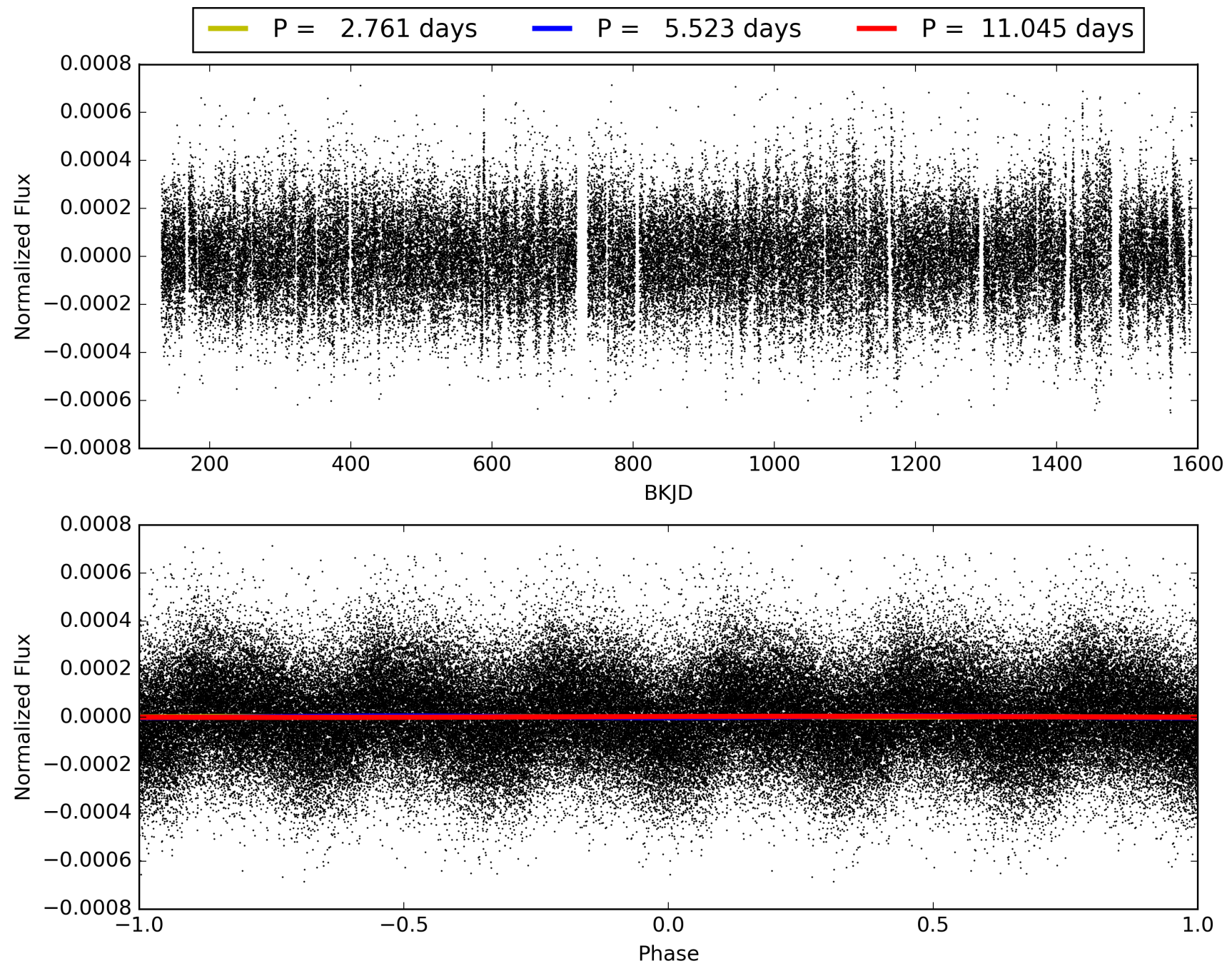
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:25:05 Z

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

TCE 009428899-01, PDC Light Curves

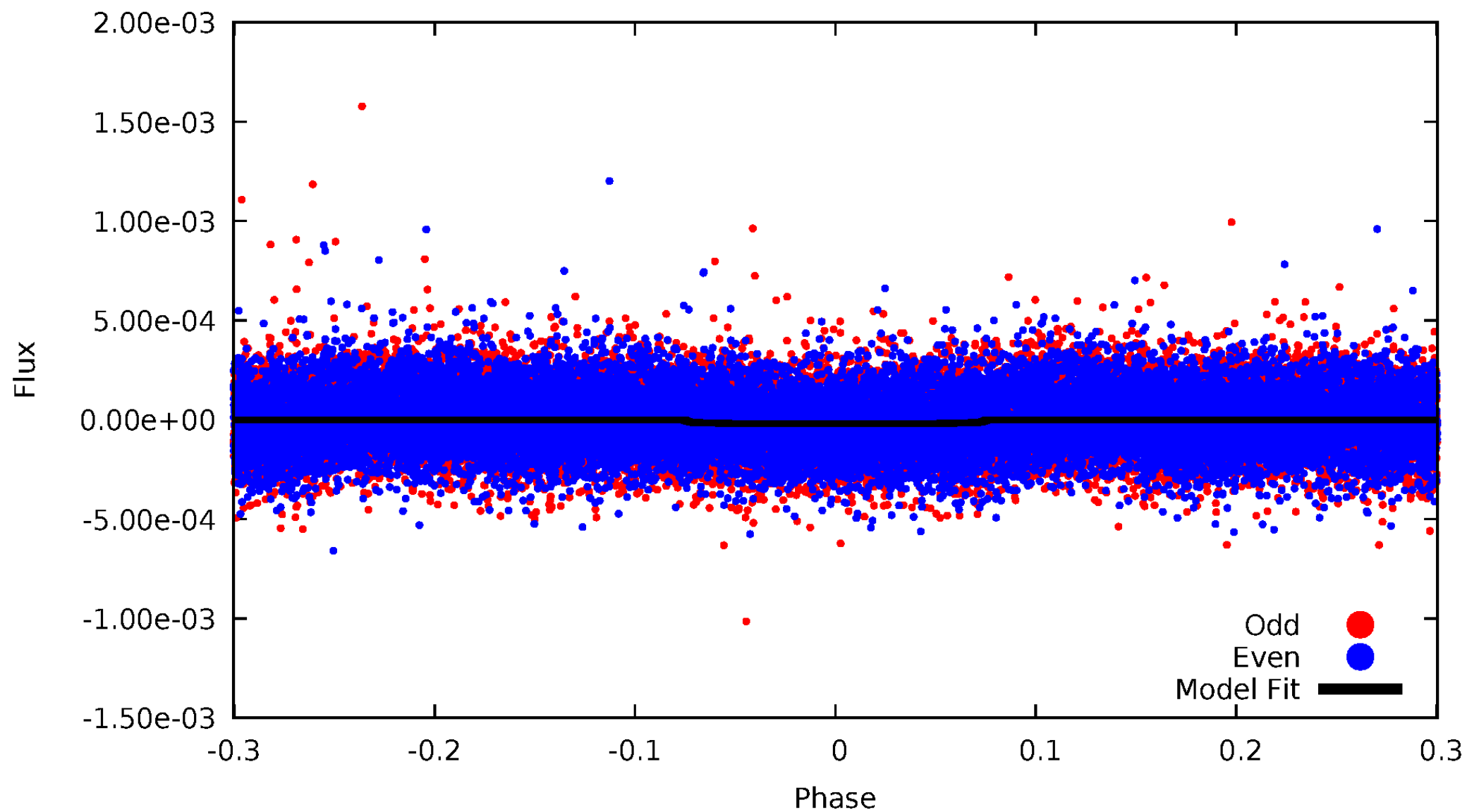


TCE 009428899-01



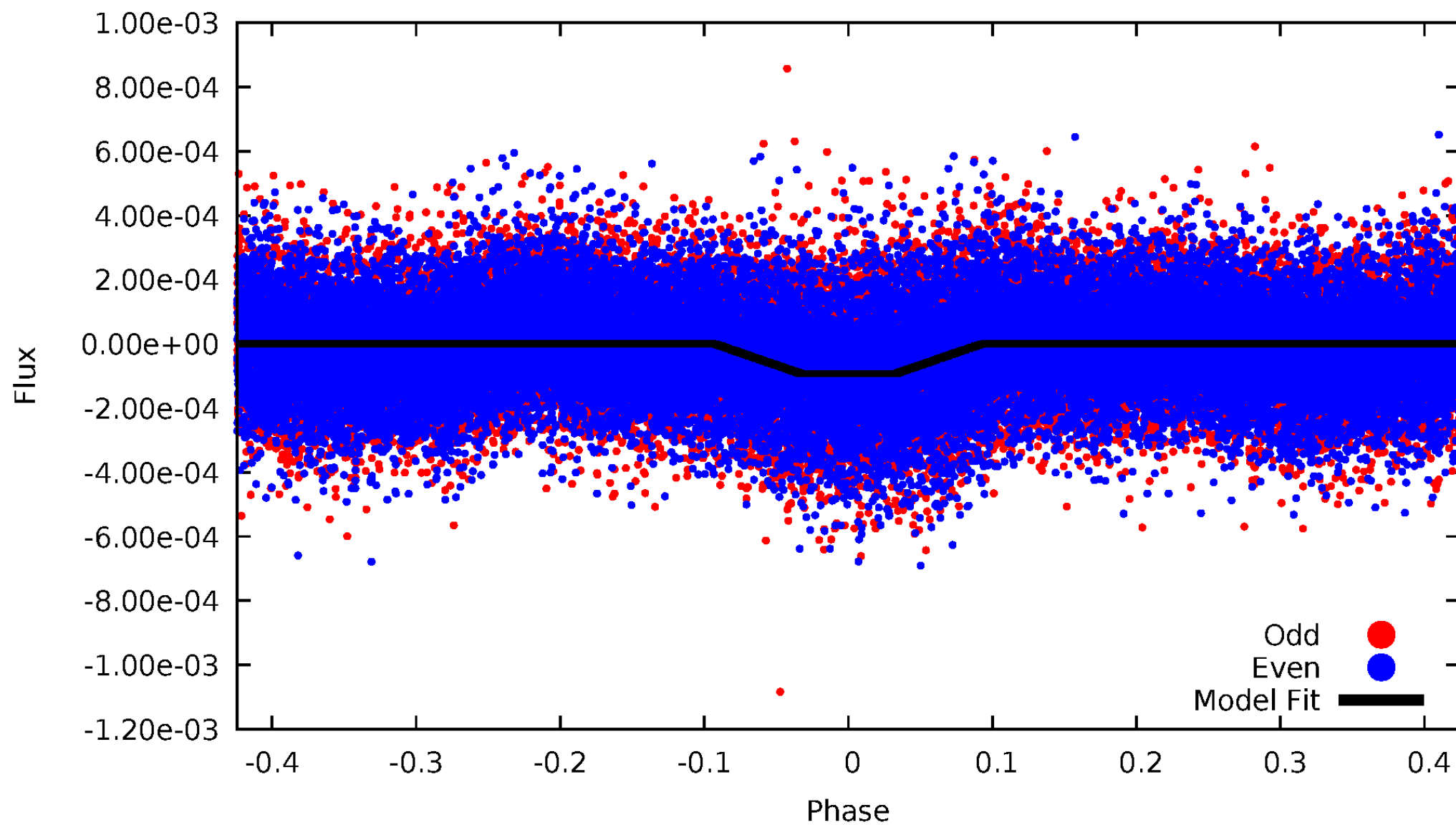
DV Odd/Even

TCE 009428899-01



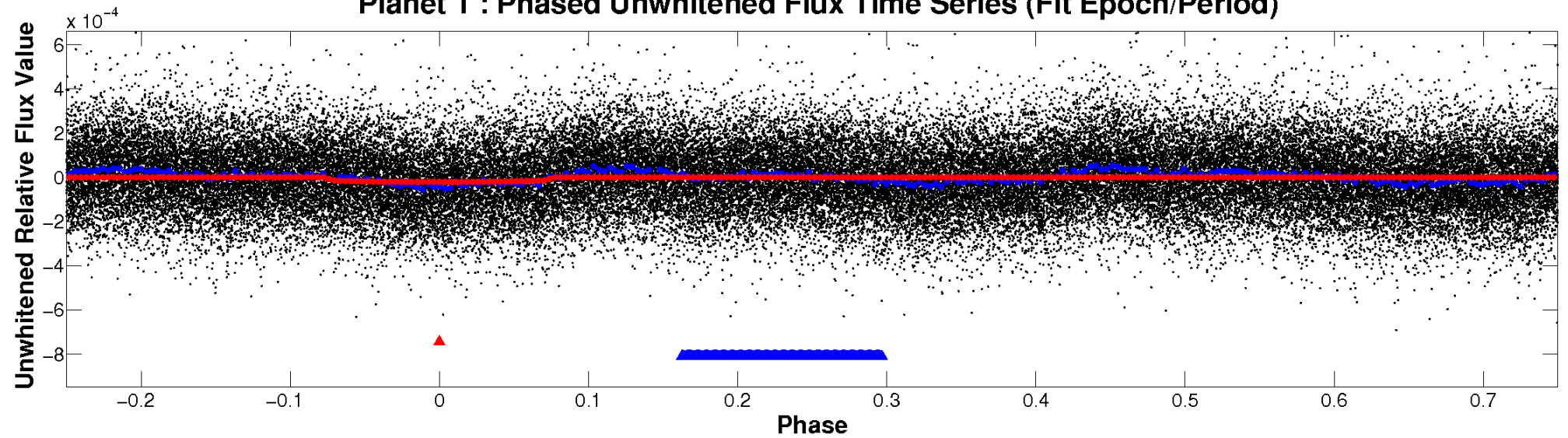
ALT Odd/Even

TCE 009428899-01

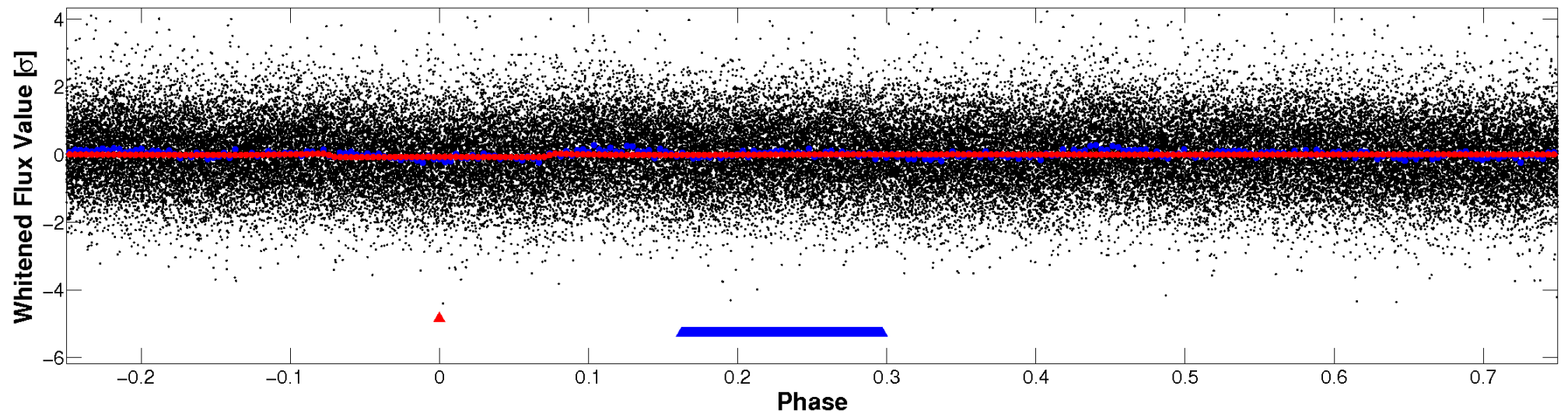


Non-Whitened Vs. Whitened Light Curve

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

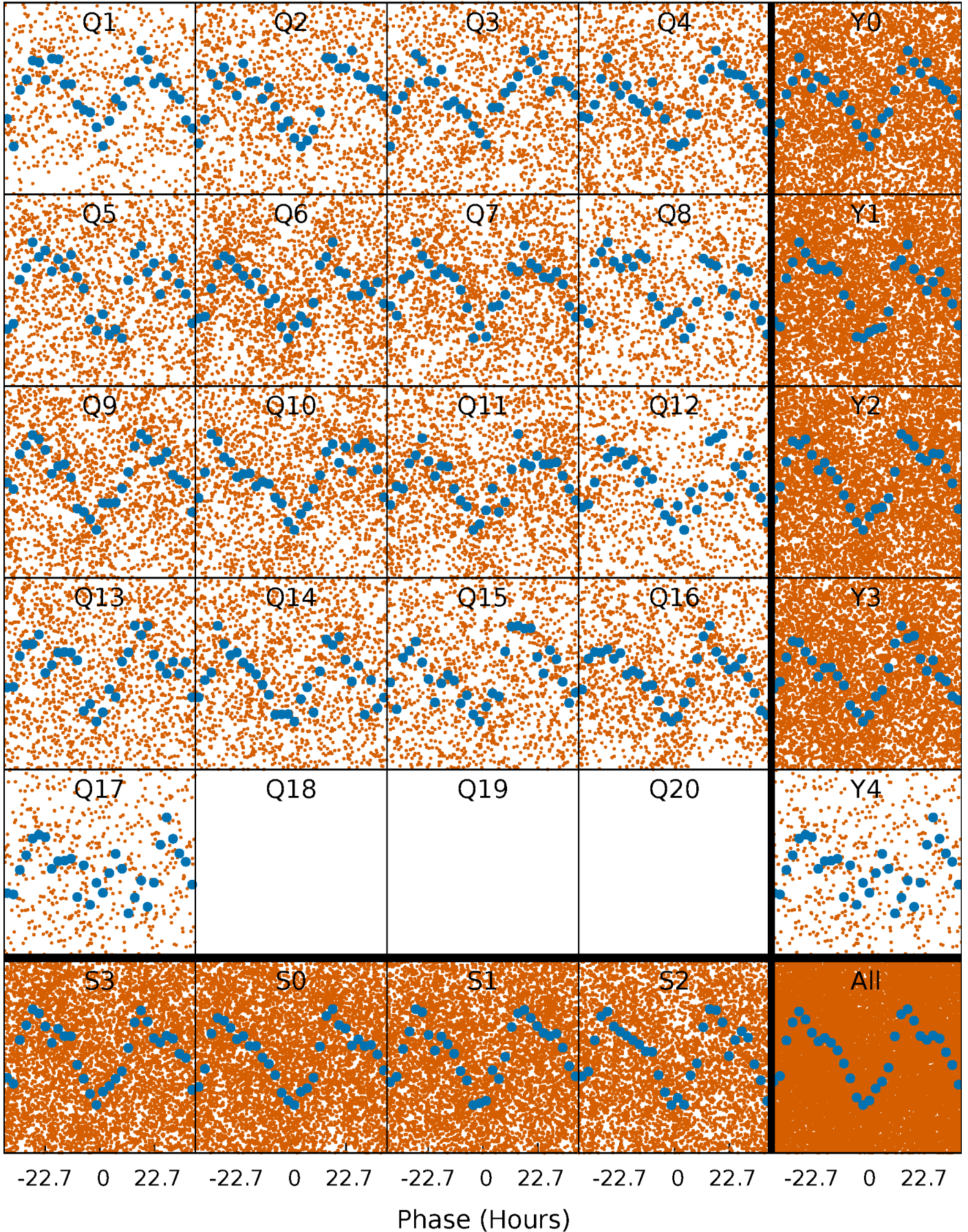


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



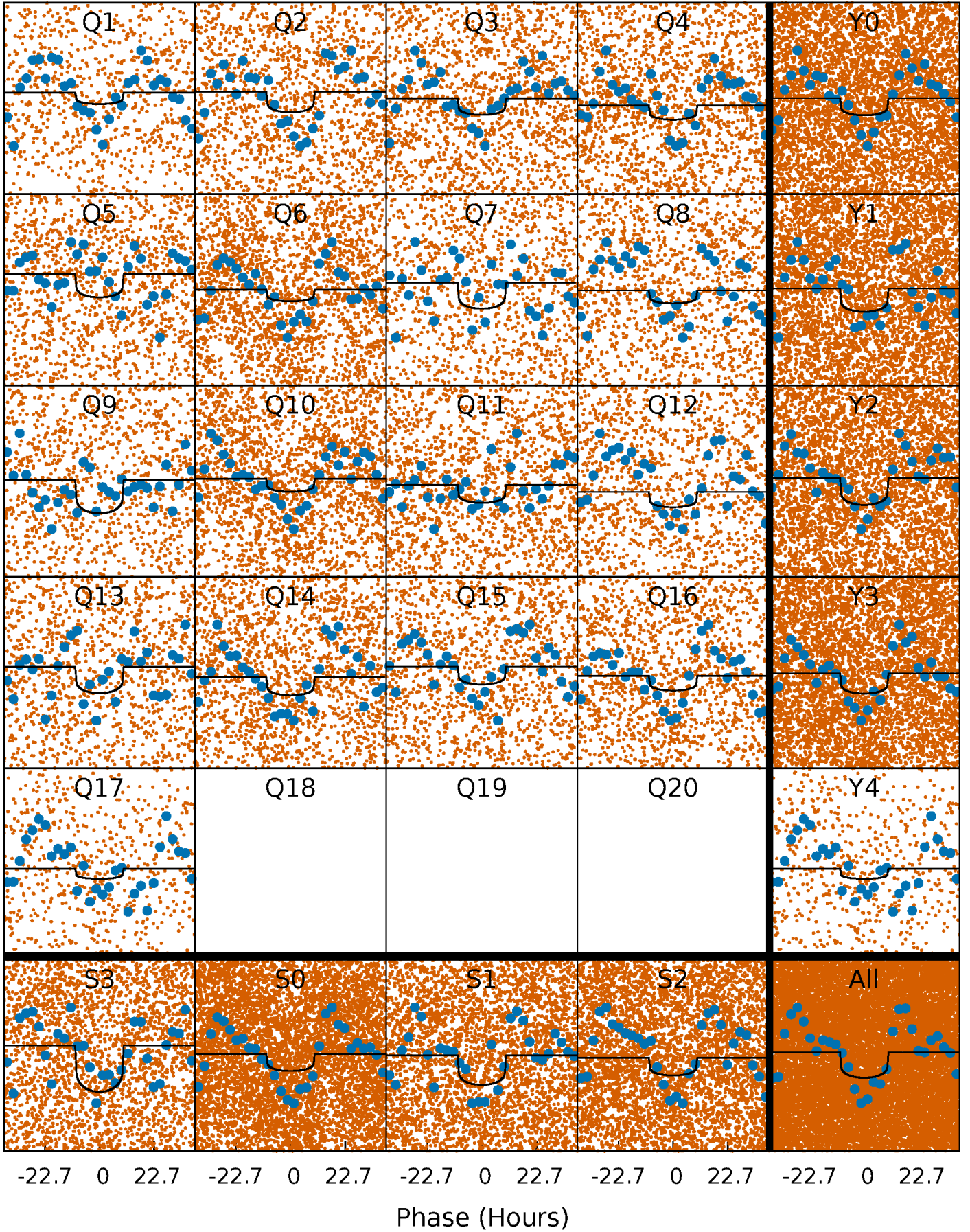
PDC Quarter-Phased Transit Curves

TCE 009428899-01 P= 5.522720 Days $T_0=132.658826$ (BKJD)



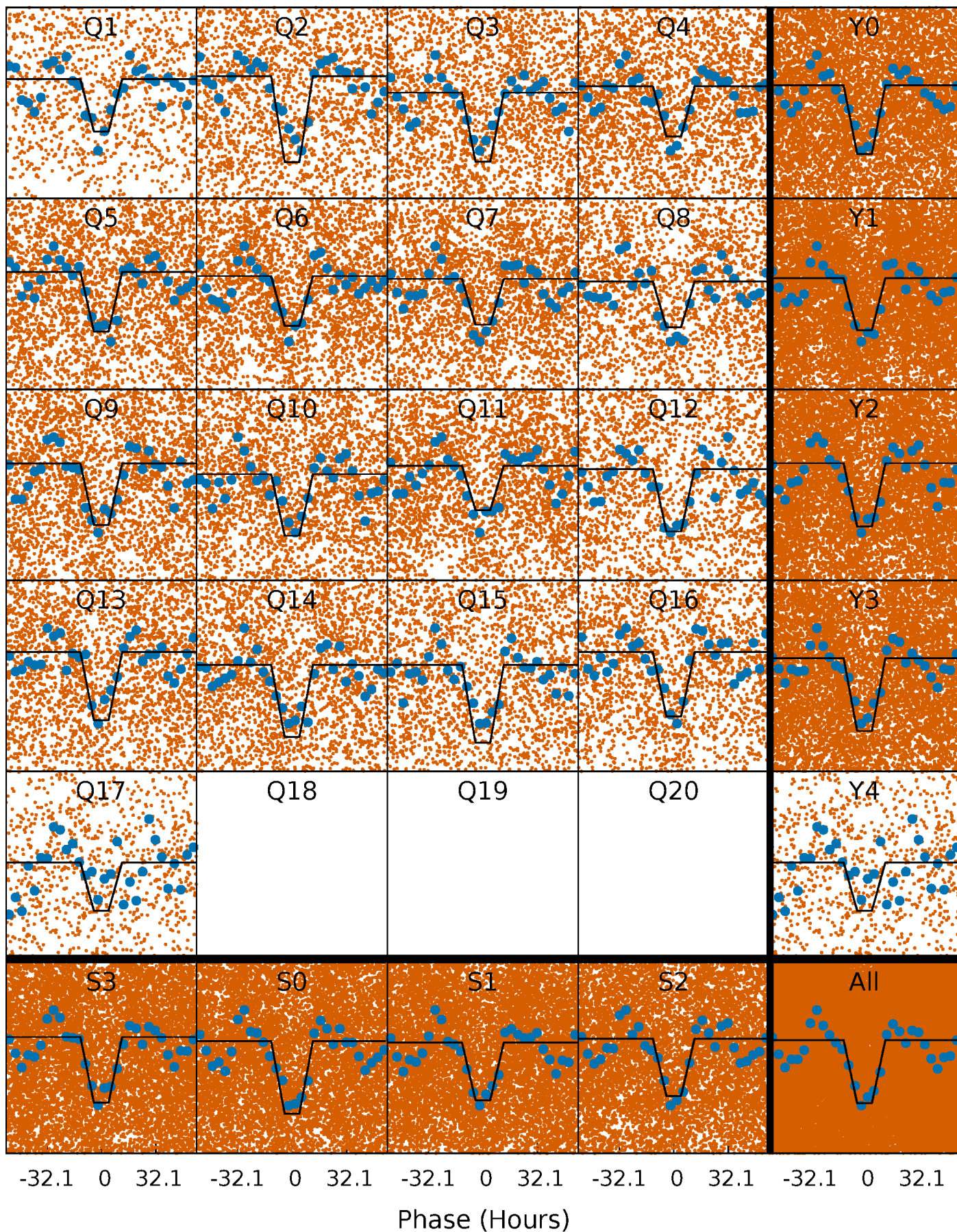
DV Quarter-Phased Transit Curves

TCE 009428899-01 P= 5.522720 Days $T_0=132.658826$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

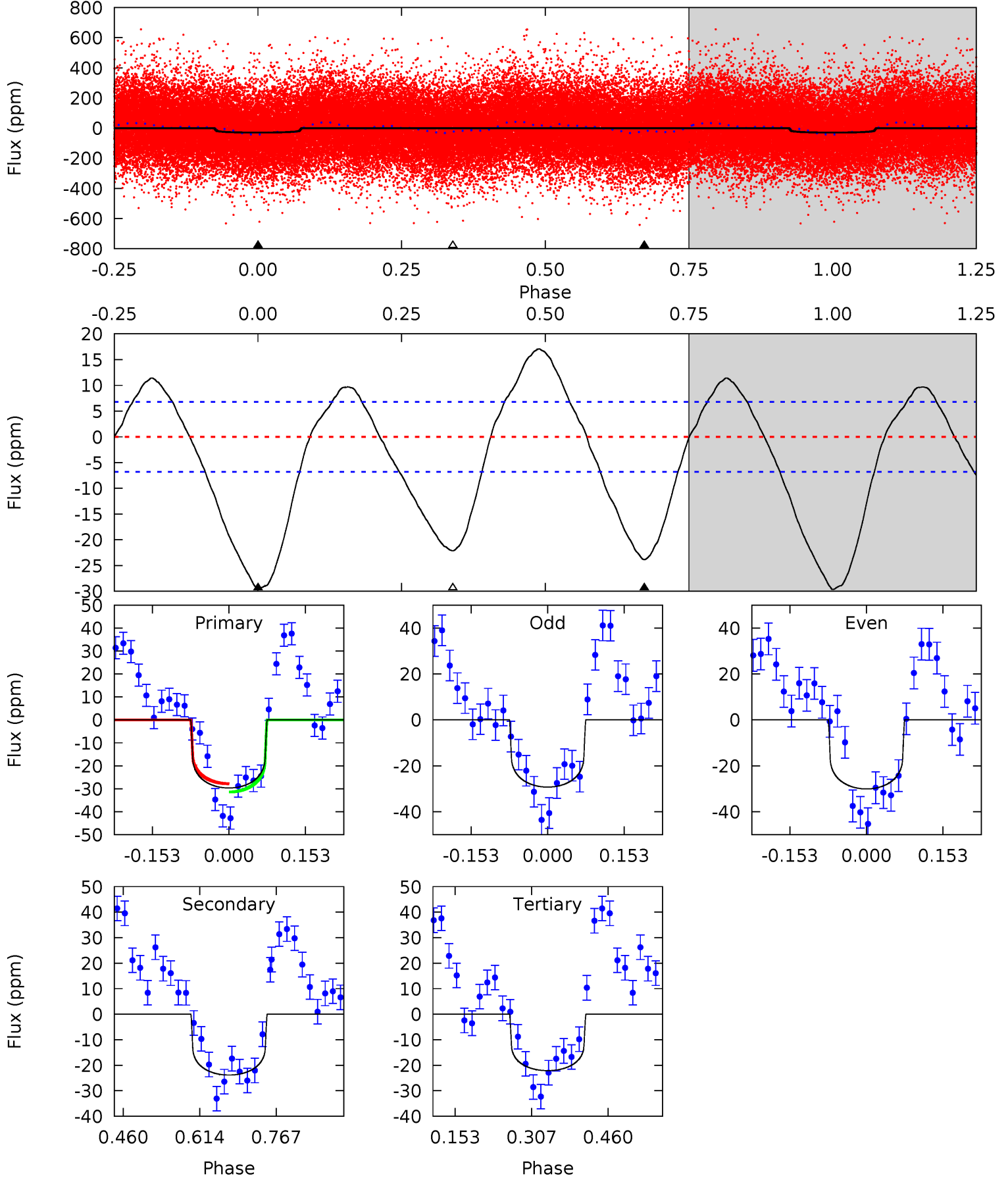
TCE 009428899-01 P= 5.522260 Days $T_0=132.720167$ (BKJD)



DV Model-Shift Uniqueness Test

009428899-01, P = 5.522720 Days, E = 127.136106 Days

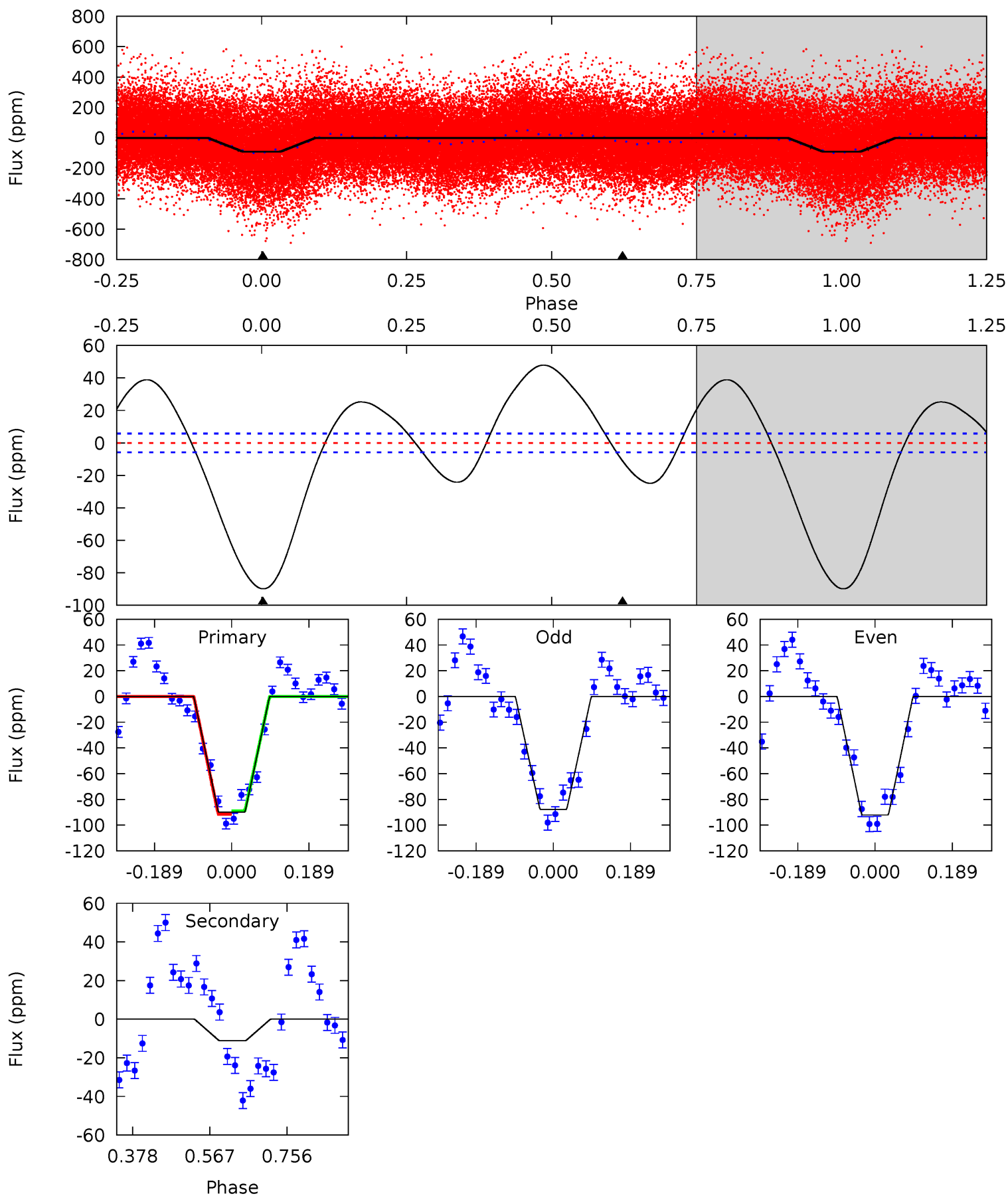
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.5	15.7	14.6	0	4.47	1.43	8.30	4.97	19.5	1.14	15.7	0.26	0.98	0.37	1.20



Alt Model-Shift Uniqueness Test

009428899-01, P = 5.522260 Days, E = 127.197907 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
69.1	8.56	0	0	4.43	1.31	13.2	69.1	69.1	8.56	8.56	1.63	0.88	0.35	1.09



Stellar Parameters For KIC 009428899

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6558^{+148}_{-214}	$4.342^{+0.072}_{-0.217}$	$0.020^{+0.250}_{-0.350}$	$1.252^{+0.457}_{-0.152}$	$1.261^{+0.195}_{-0.175}$	$0.905^{+0.274}_{-0.490}$
	+2%/-3%	+2%/-5%	+1250%/-1750%	+37%/-12%	+15%/-14%	+30%/-54%
Source	PHO1	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 009428899-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-24 ± 2	$0.65^{+0.20}_{-0.18}$	1786^{+151}_{-87}	6800^{+1430}_{-843}	136^{+124}_{-58}
Alt.	-11 ± 1	$1.37^{+0.28}_{-0.23}$	1787^{+140}_{-90}	4098^{+245}_{-202}	14^{+6}_{-4}

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 $A_{obs} \gg 1.0$

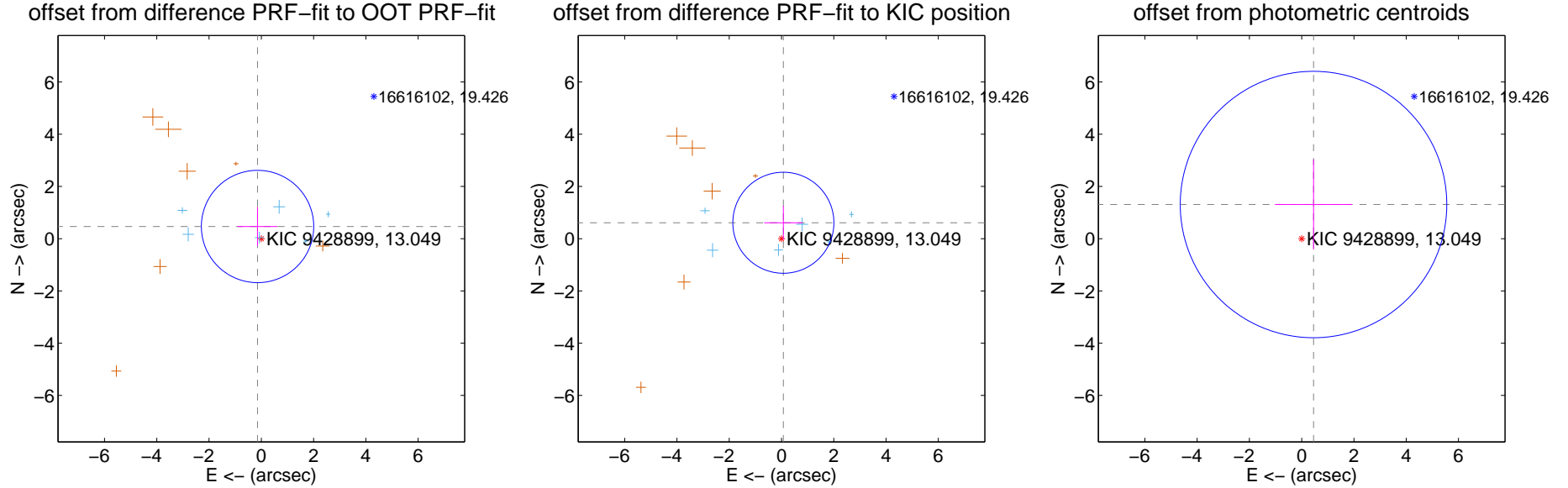
DV Centroid Data

Supplemental centroid analysis for 009428899-01. Kepler magnitude: 13.05. Transit SNR 7.32

There are 6 quarters with good PRF difference image offsets

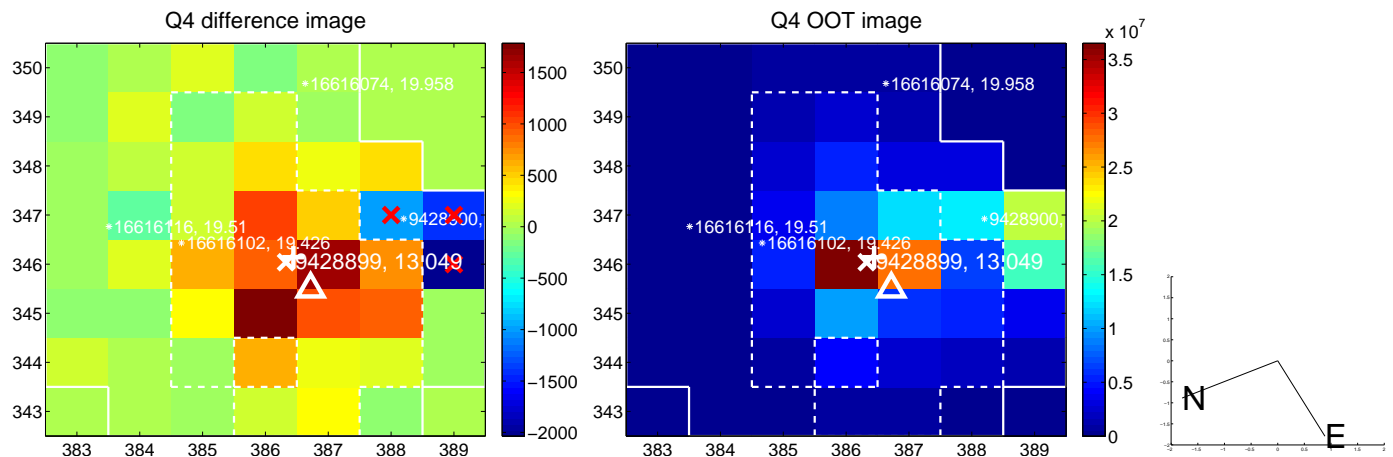
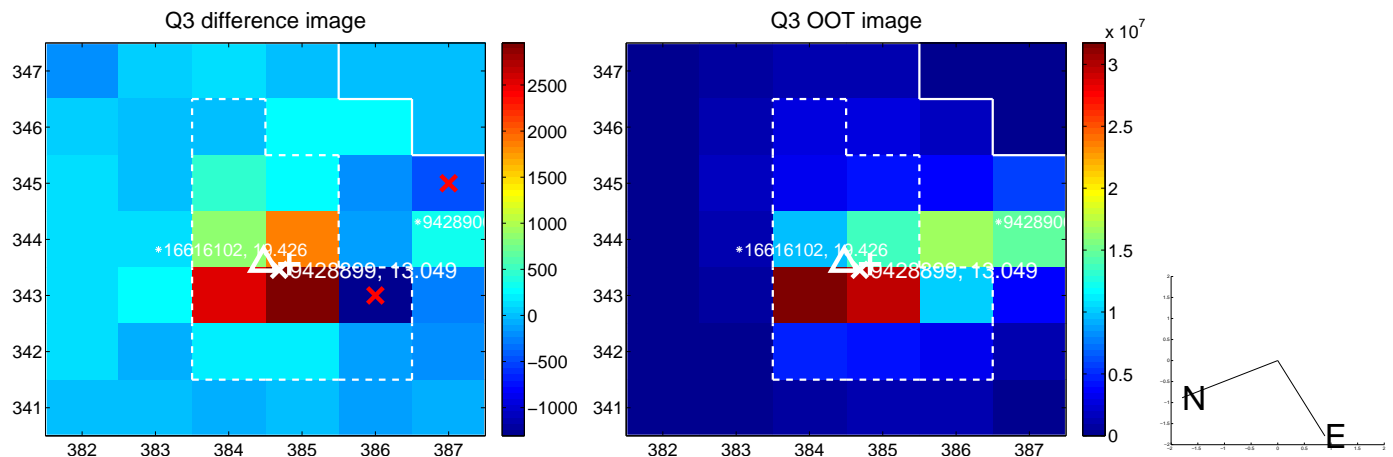
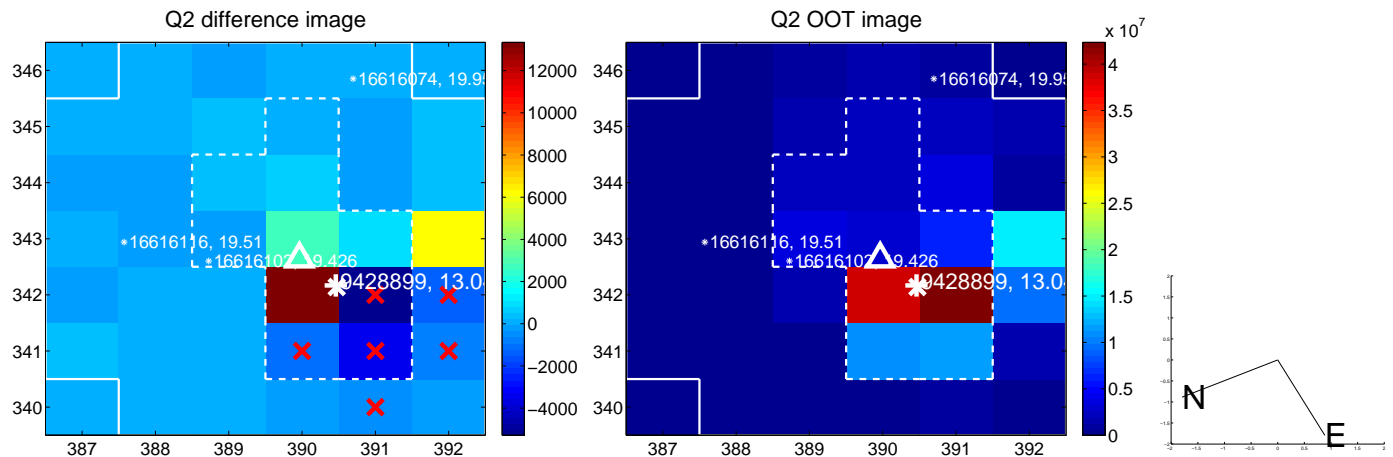
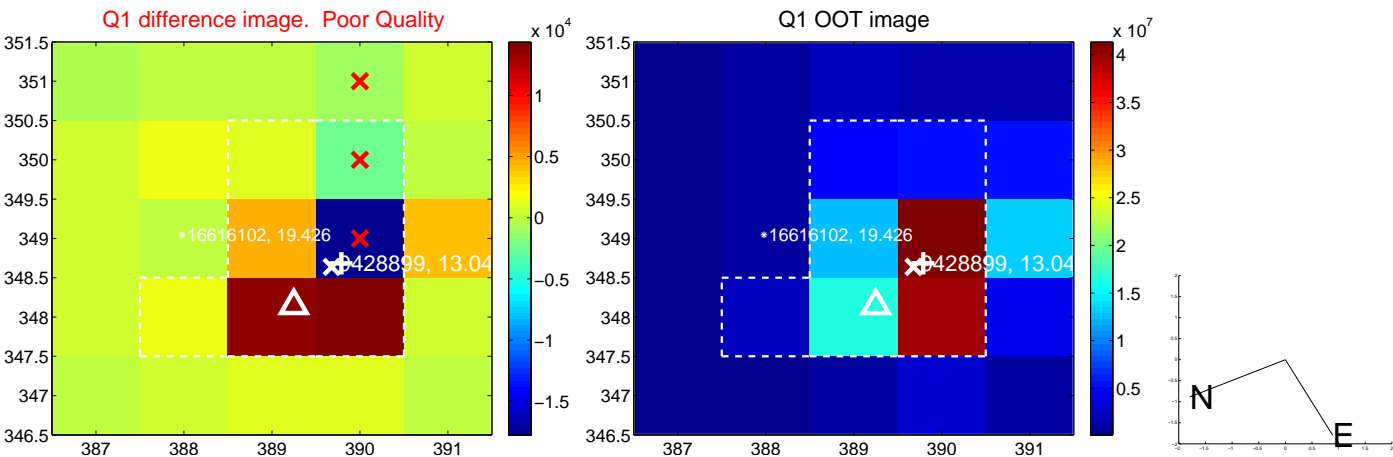
The direct PRF centroid is offset from the target star catalog position by about 0.73 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.489 ± 0.717	0.68	0.144 ± 0.762	0.467 ± 0.750
PRF-fit source offset from KIC position	0.614 ± 0.645	0.95	-0.071 ± 0.732	0.610 ± 0.646
photometric centroid source offset	1.38 ± 1.70	0.81	-0.45 ± 1.48	1.31 ± 1.72

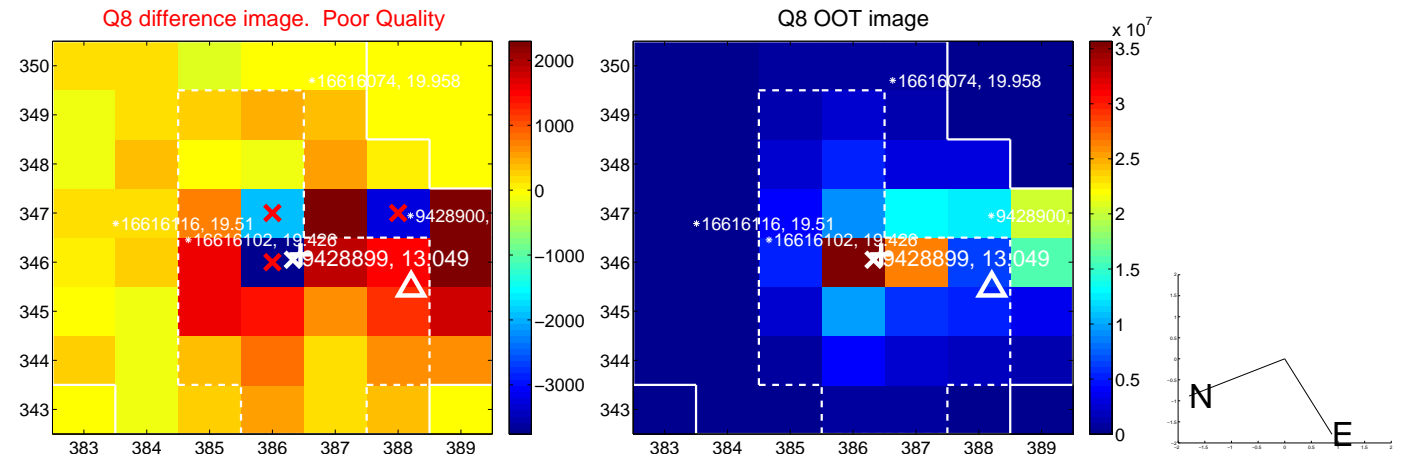
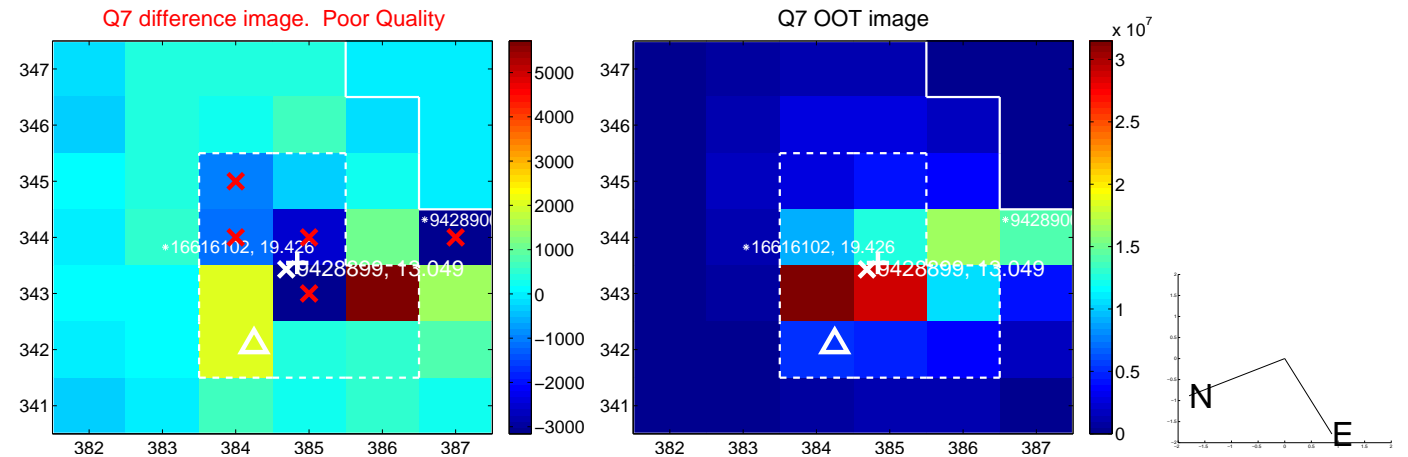
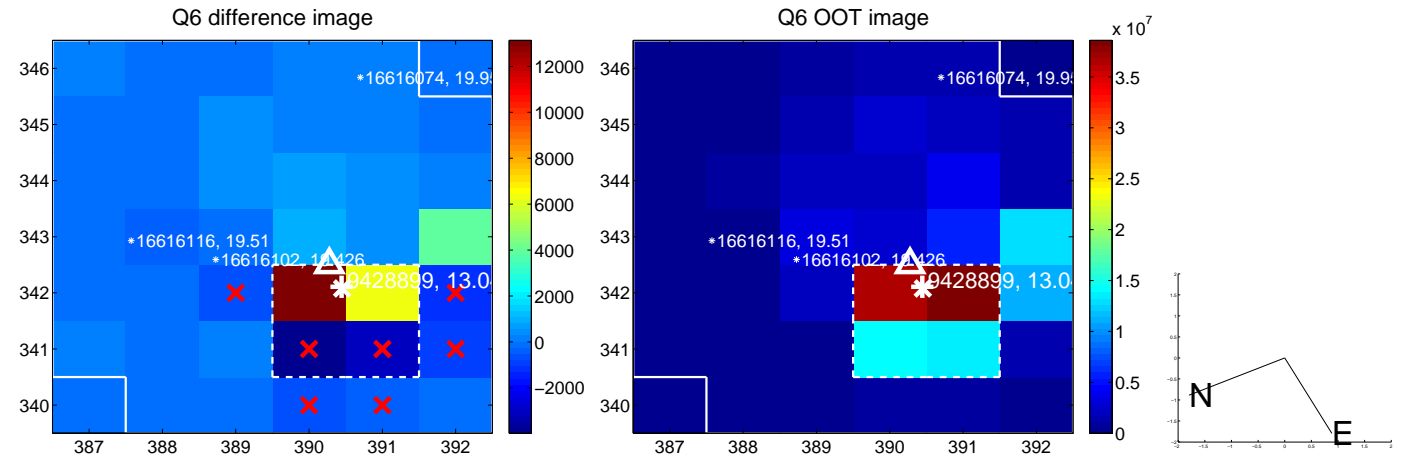
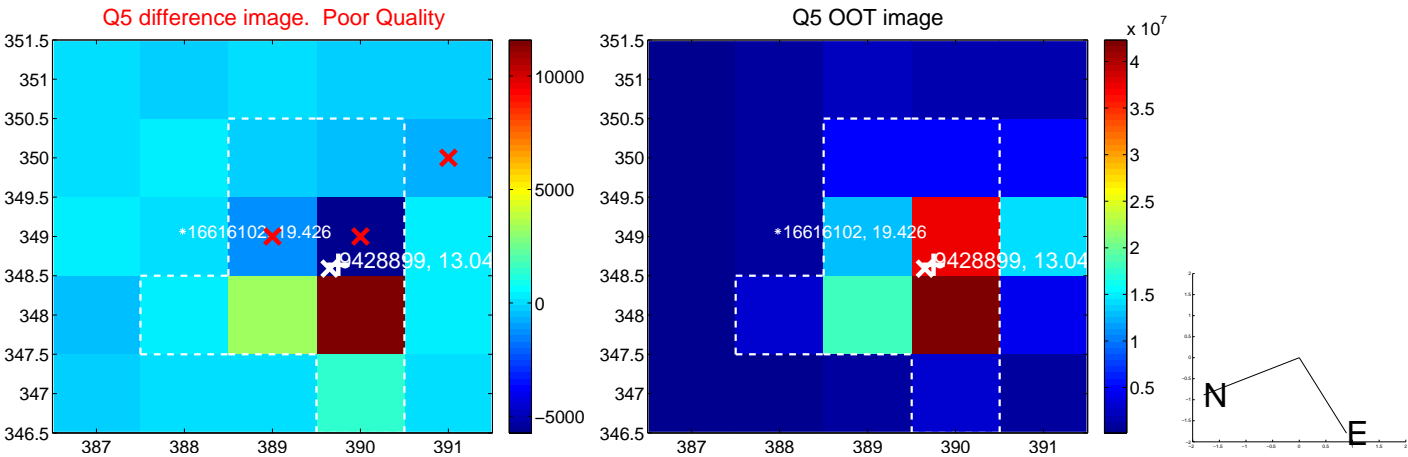


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

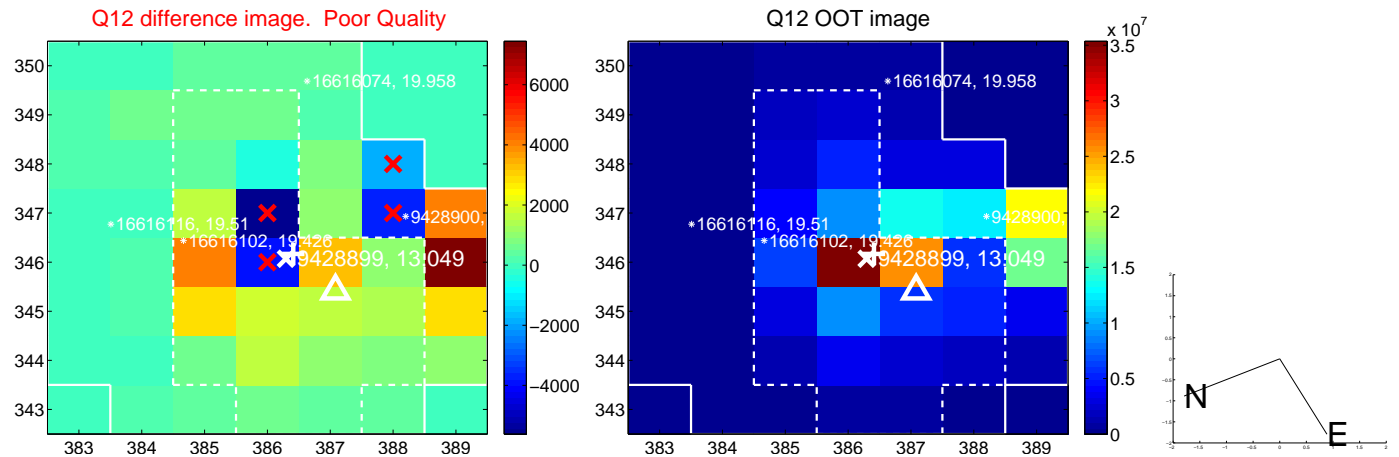
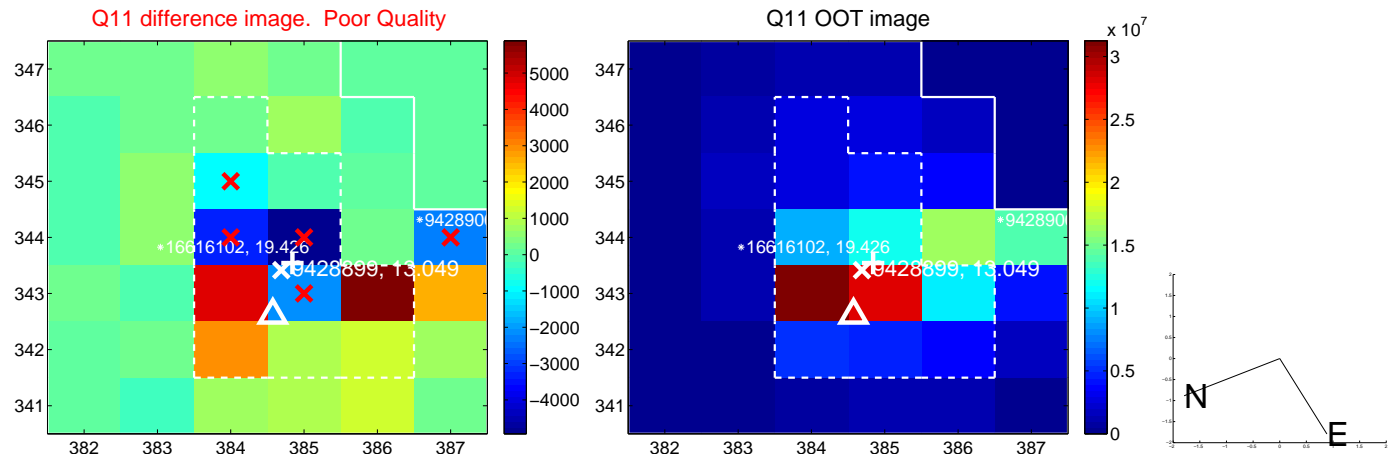
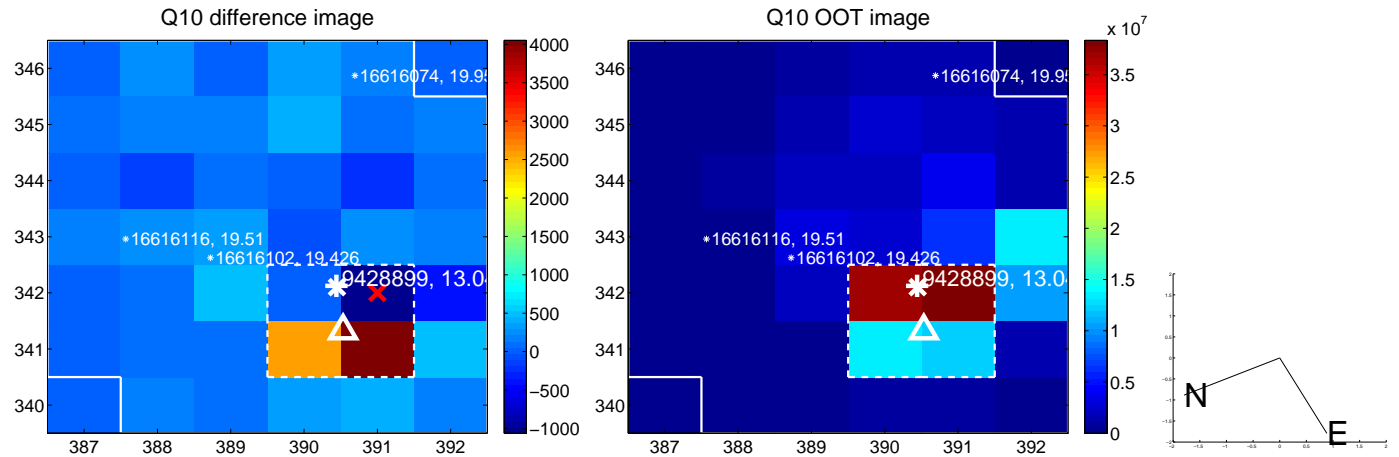
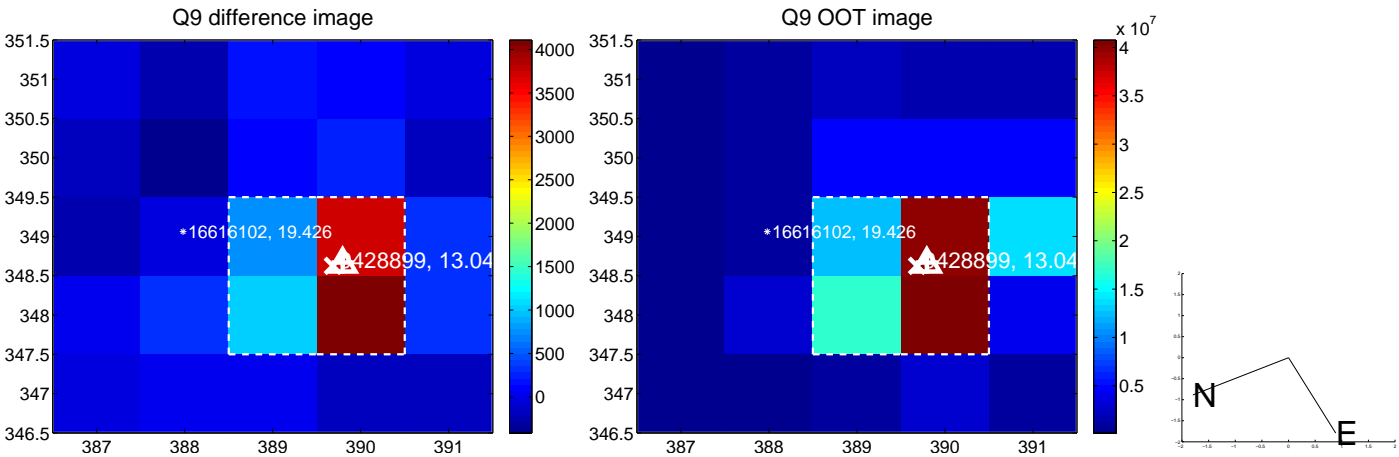
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



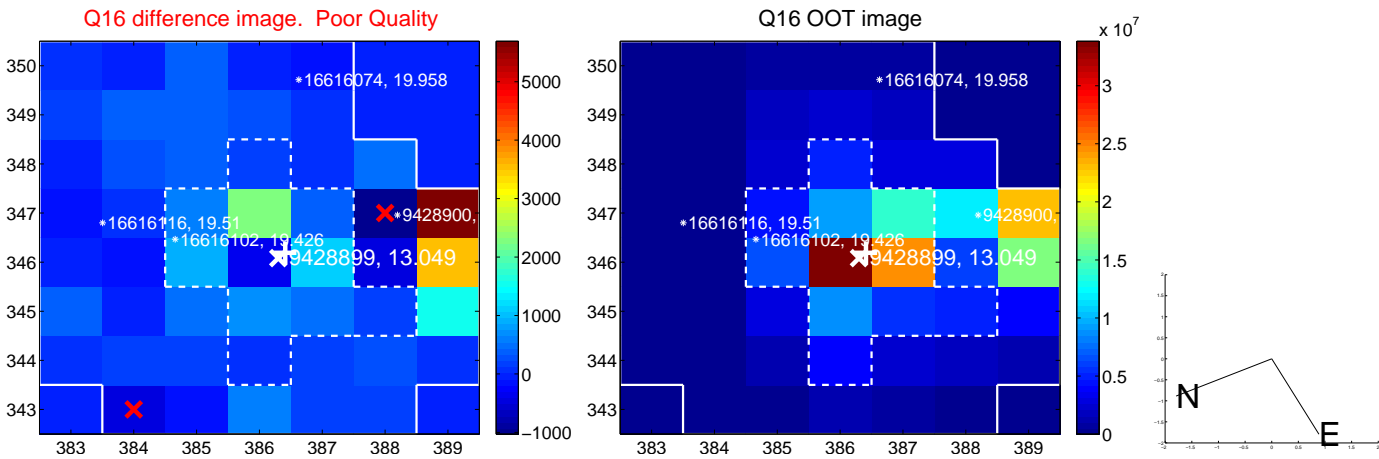
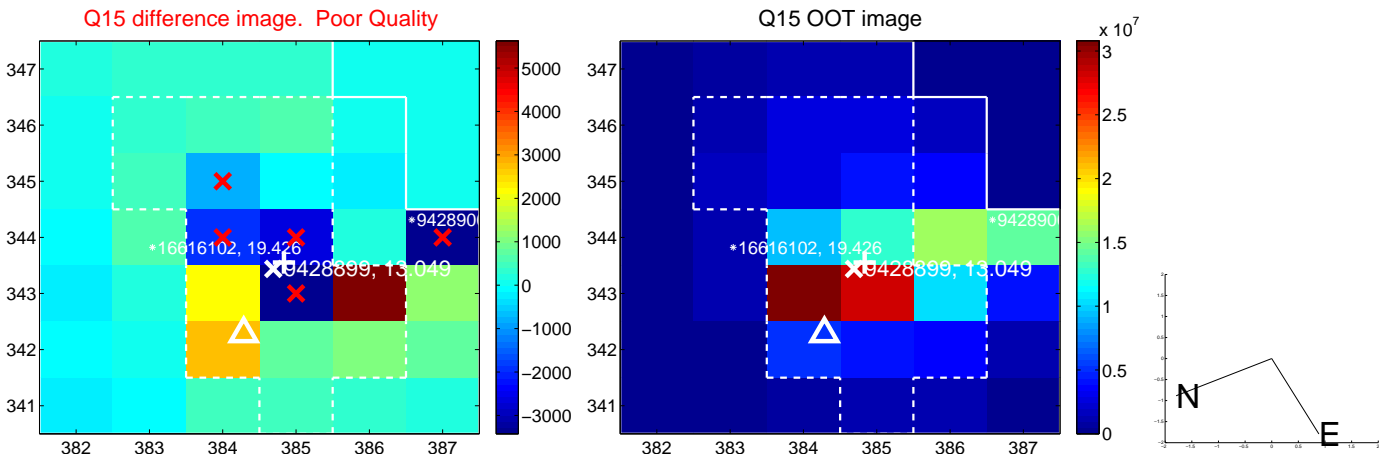
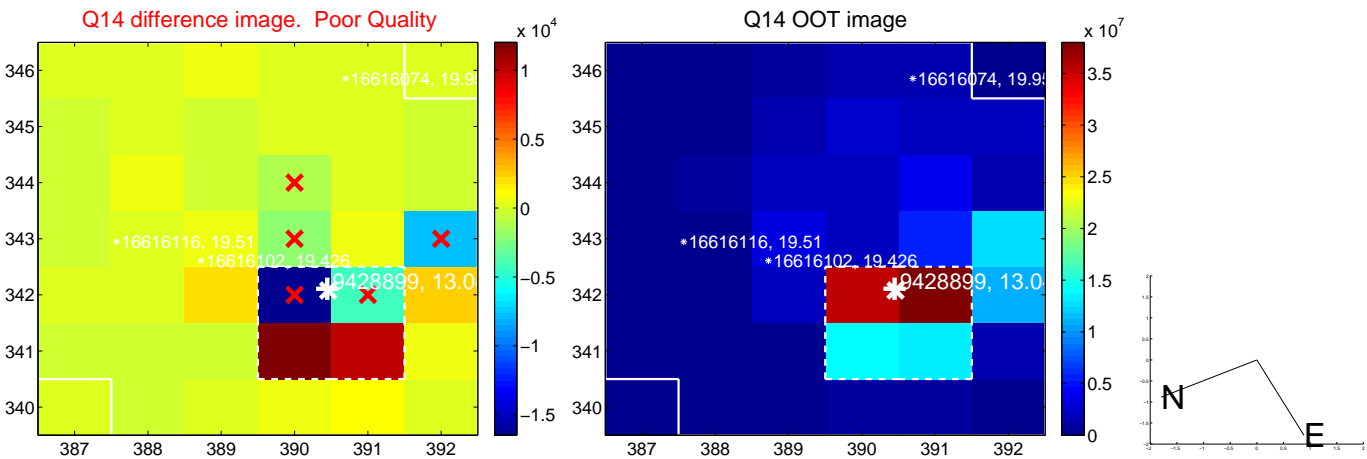
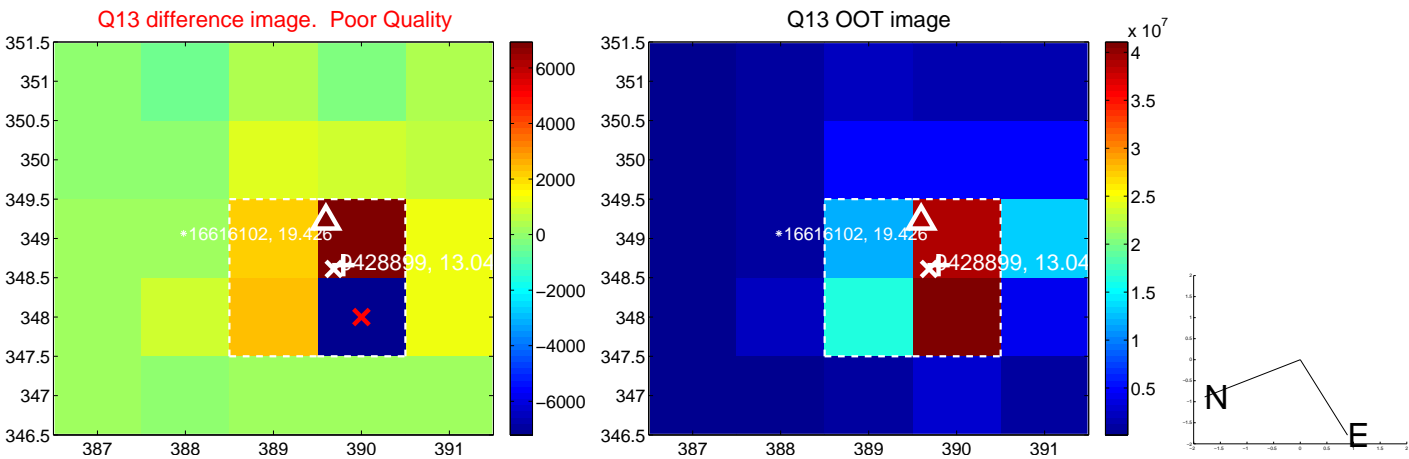
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



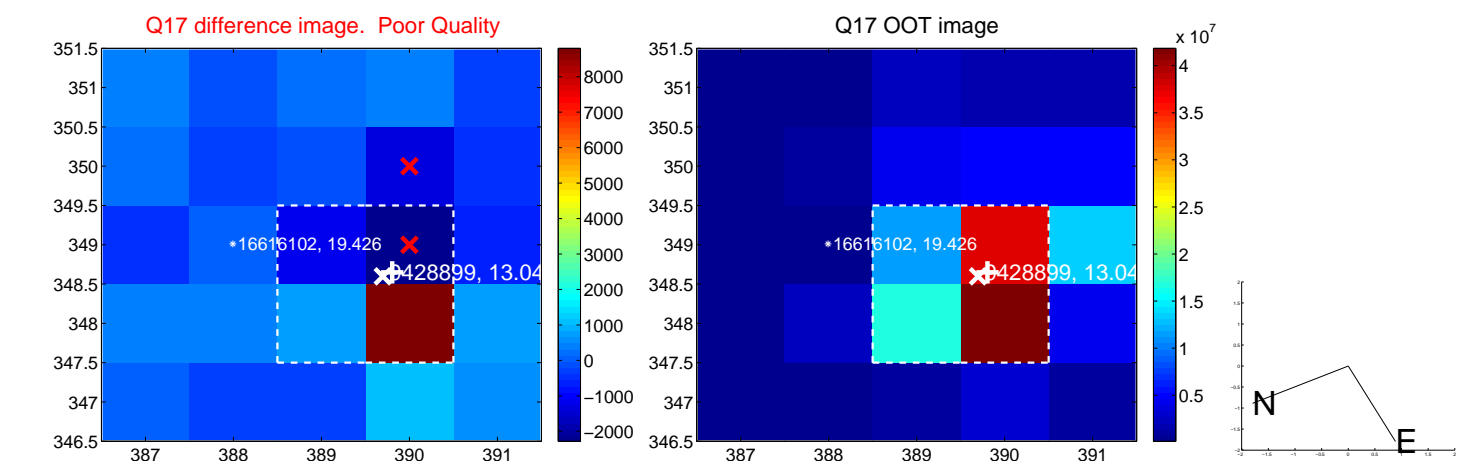
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



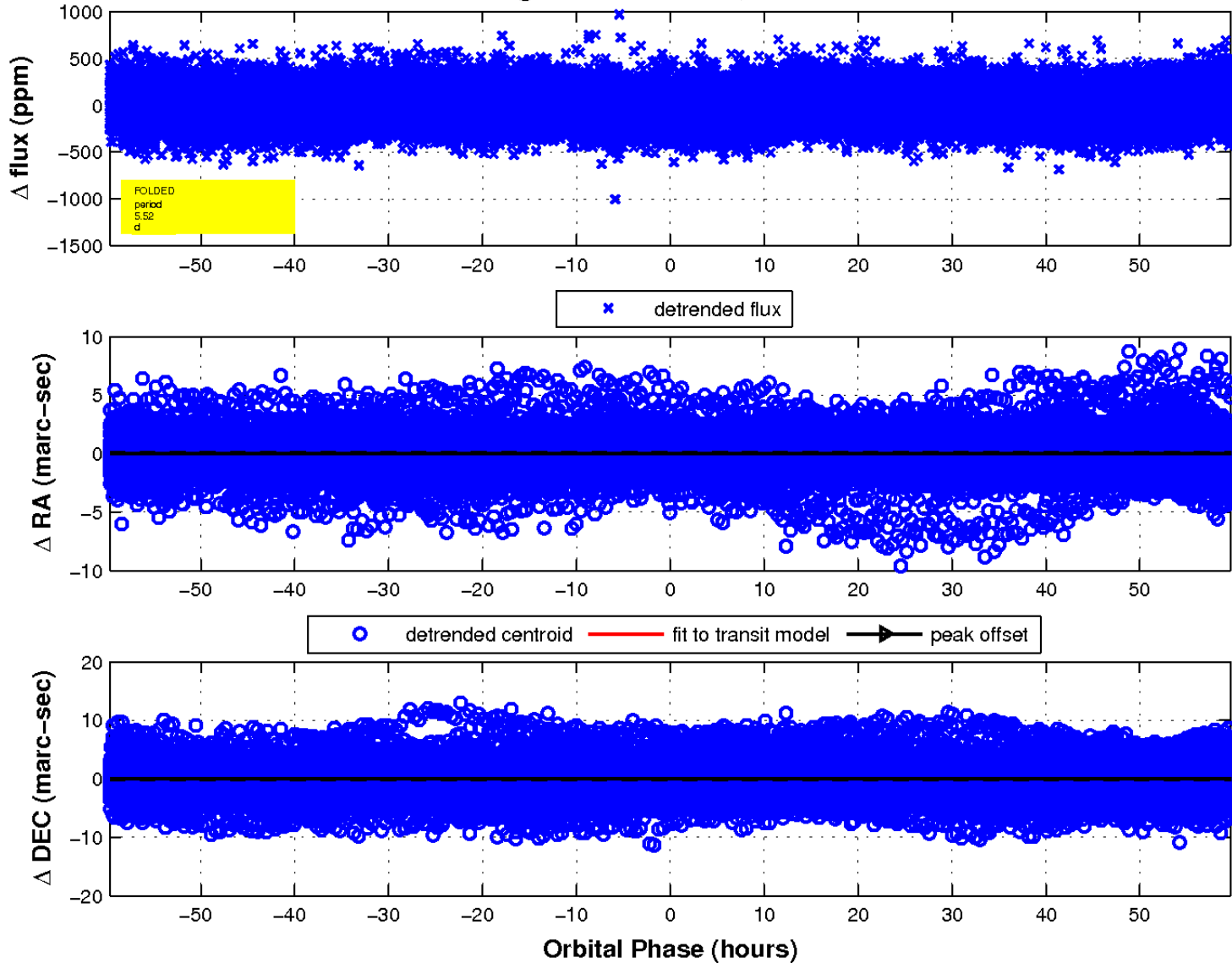
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

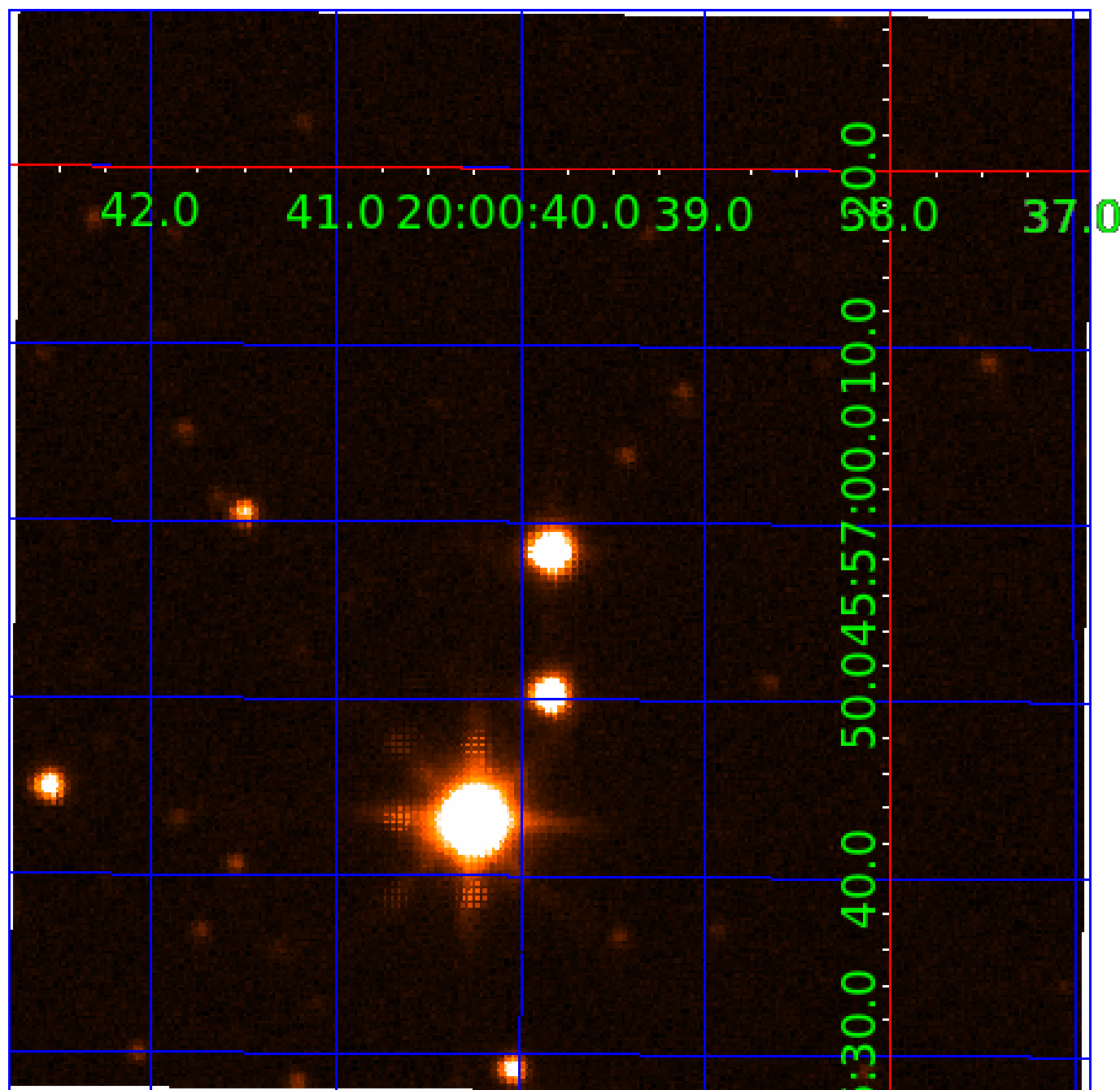


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009428899

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})
009428899-01	OBS	No	5.522720	132.658826	20.9	19.896	8.3	7.3	1.25	6558	0.62	596.37
009428899-02	OBS	No	5.519898	134.298343	0.0	47.704	8.4	0.0	1.25	6558	0.00	596.77

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009428899-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
009428899-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—CENT_FEW_DIFFS

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

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

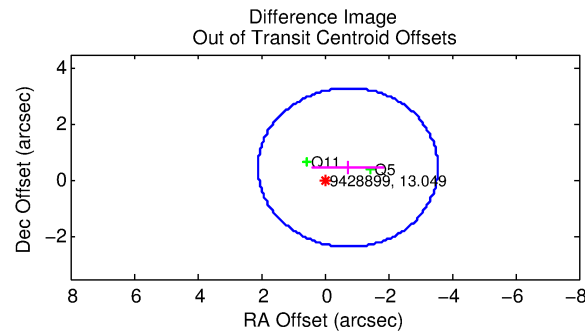
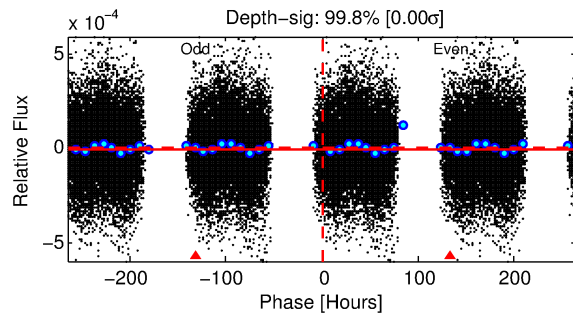
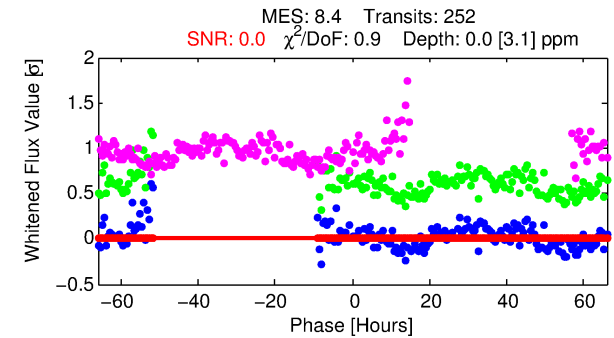
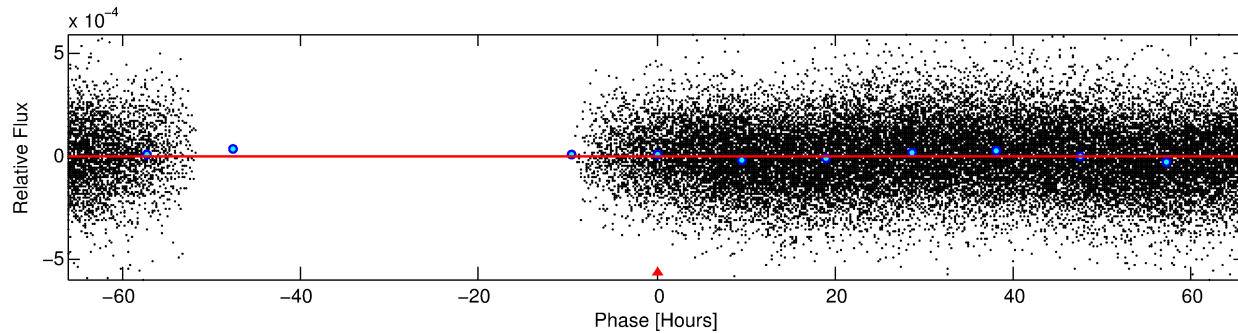
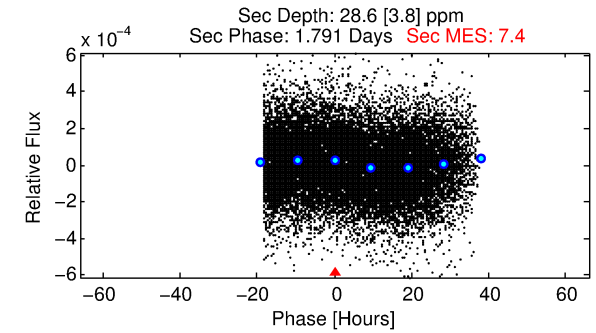
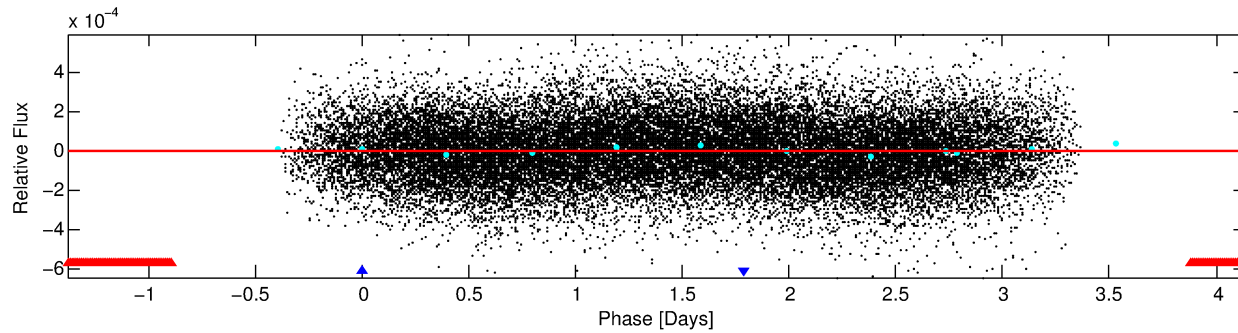
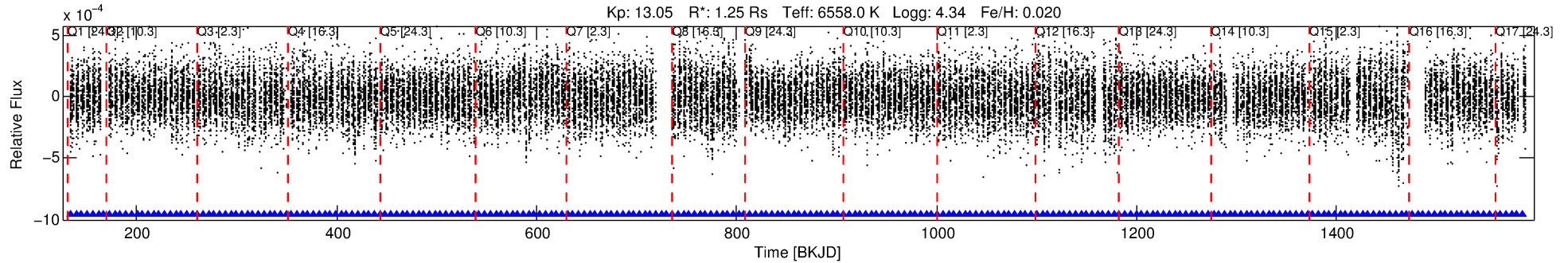
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009428899-02

No Significant Match Found

DV One-Page Summary

KIC: 9428899 Candidate: 2 of 2 Period: 5.520 d



DV Fit Results:

Period = 5.51990 [4.79240] d
Epoch = 134.2983 [665.5724] BKJD
Rp/R* = 0.0000 [0.0495]
a/R* = 1.08 [96.41]
b = 0.52 [1171.97]
Seff = 596.77 [737.51]
Teq = 1260 [389] K
Rp = 0.00 [6.76] Re
a = 0.0660 [0.0429] AU
Ag = 4643850.32 [16369994188.46]
Teffp = 90456 [79717566] K [0.00σ]

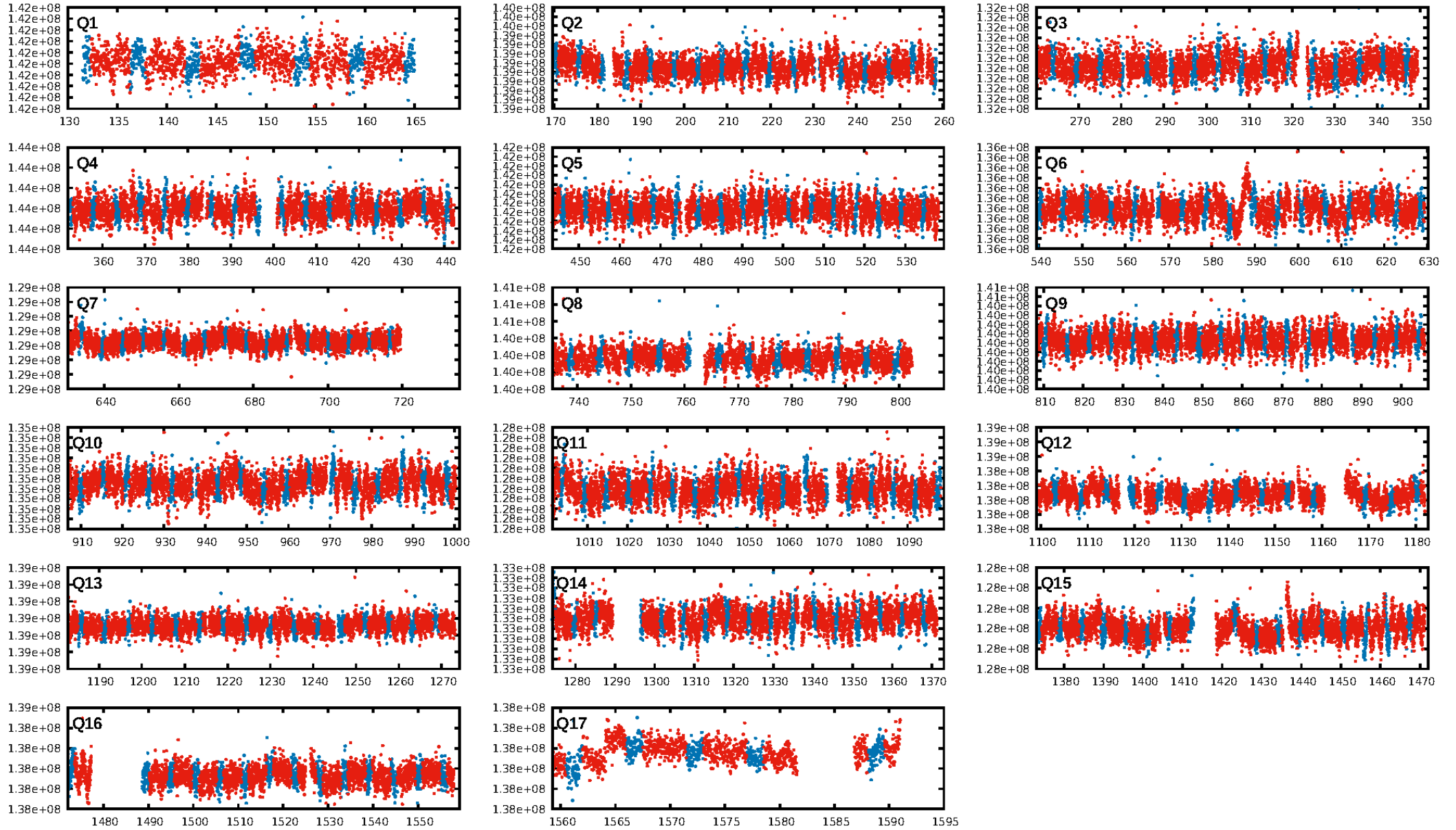
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [240/240]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.872 arcsec [0.92σ]
KicOffset-rm: 0.812 arcsec [0.80σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/17]

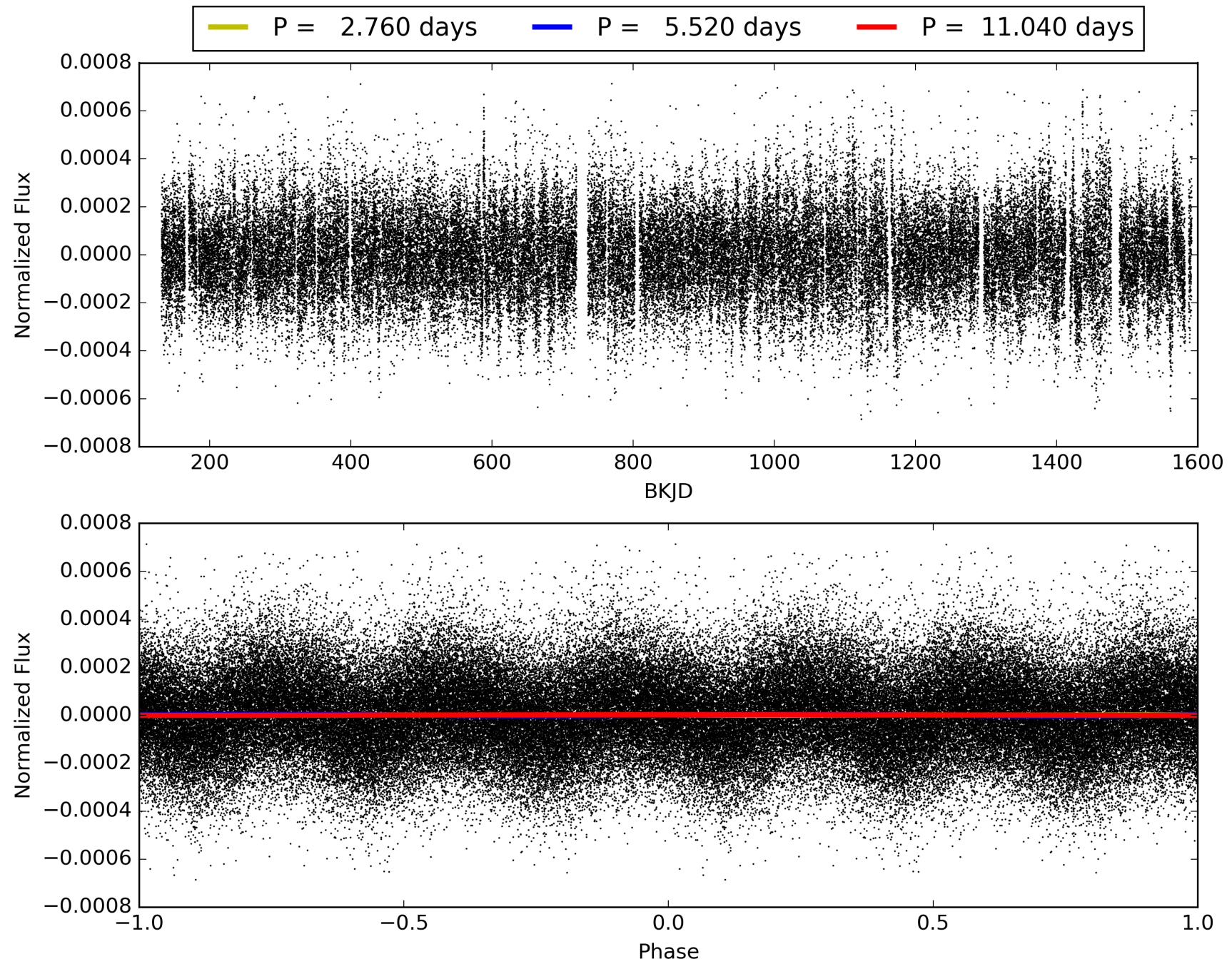
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:25:21 Z

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

TCE 009428899-02, PDC Light Curves

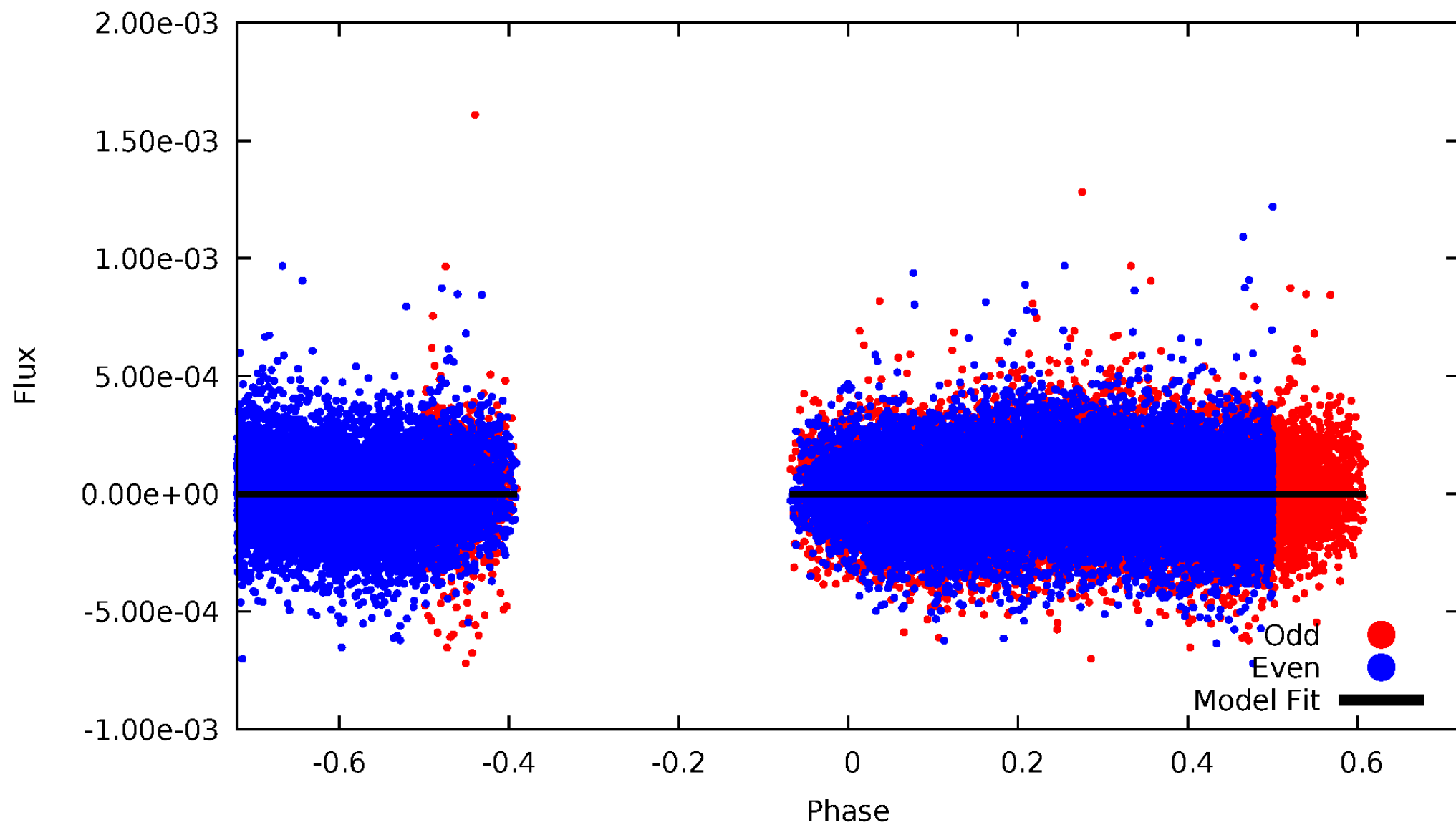


TCE 009428899-02



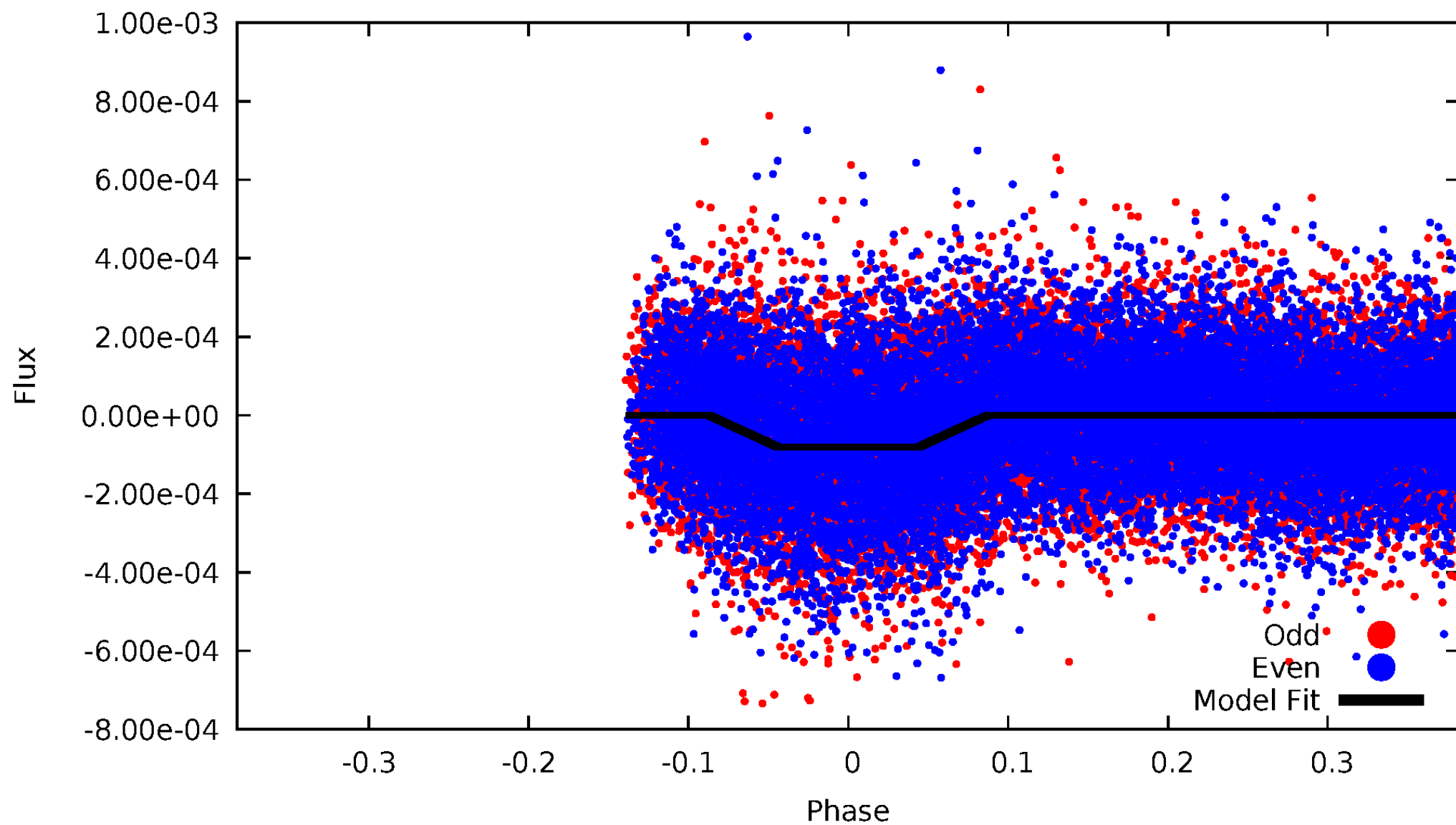
DV Odd/Even

TCE 009428899-02



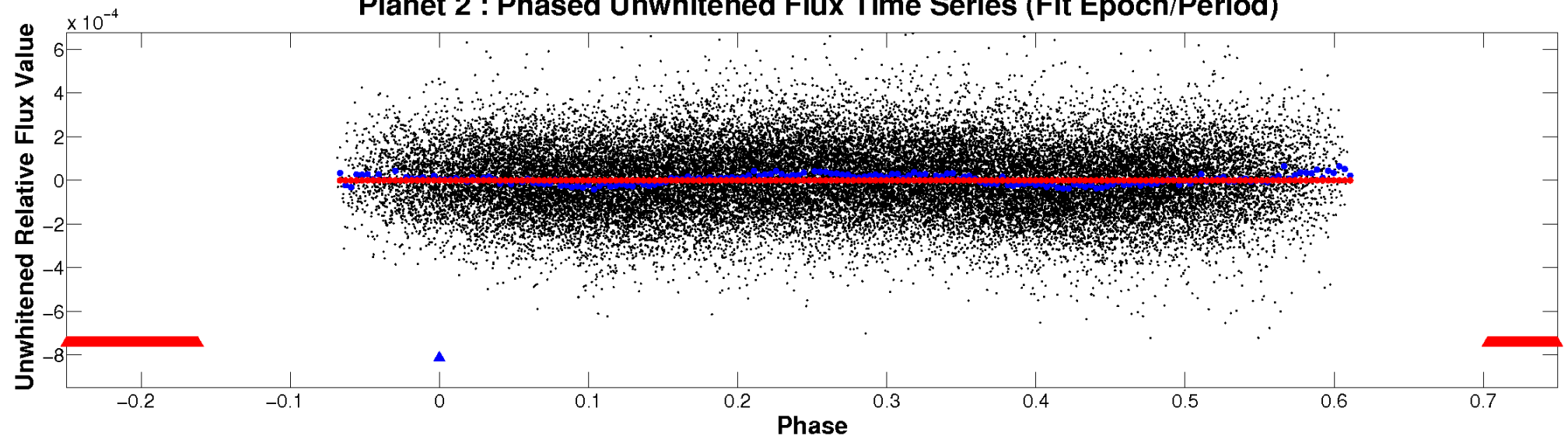
ALT Odd/Even

TCE 009428899-02

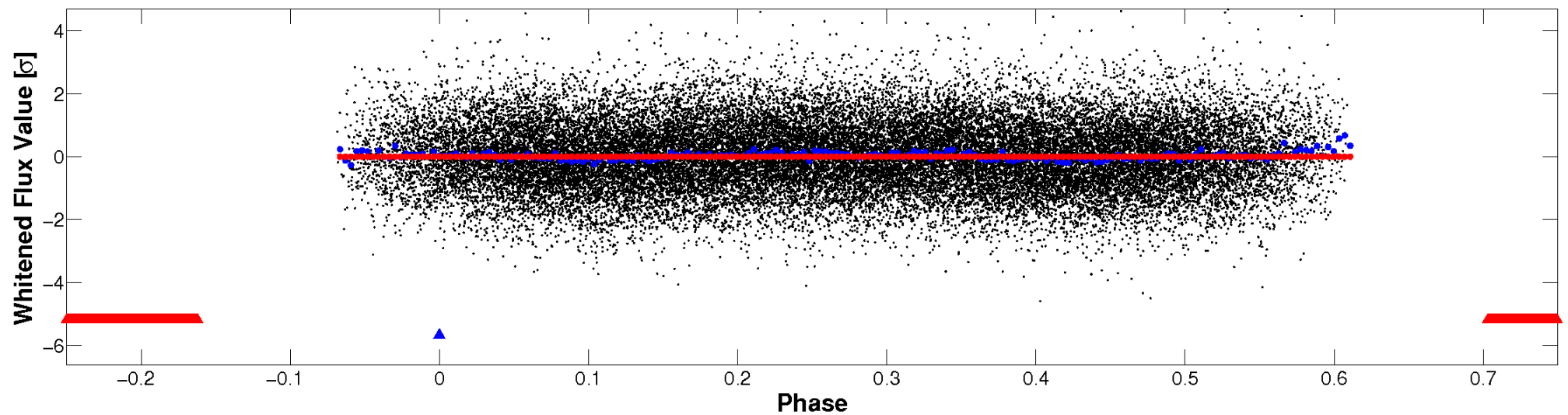


Non-Whitened Vs. Whitened Light Curve

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

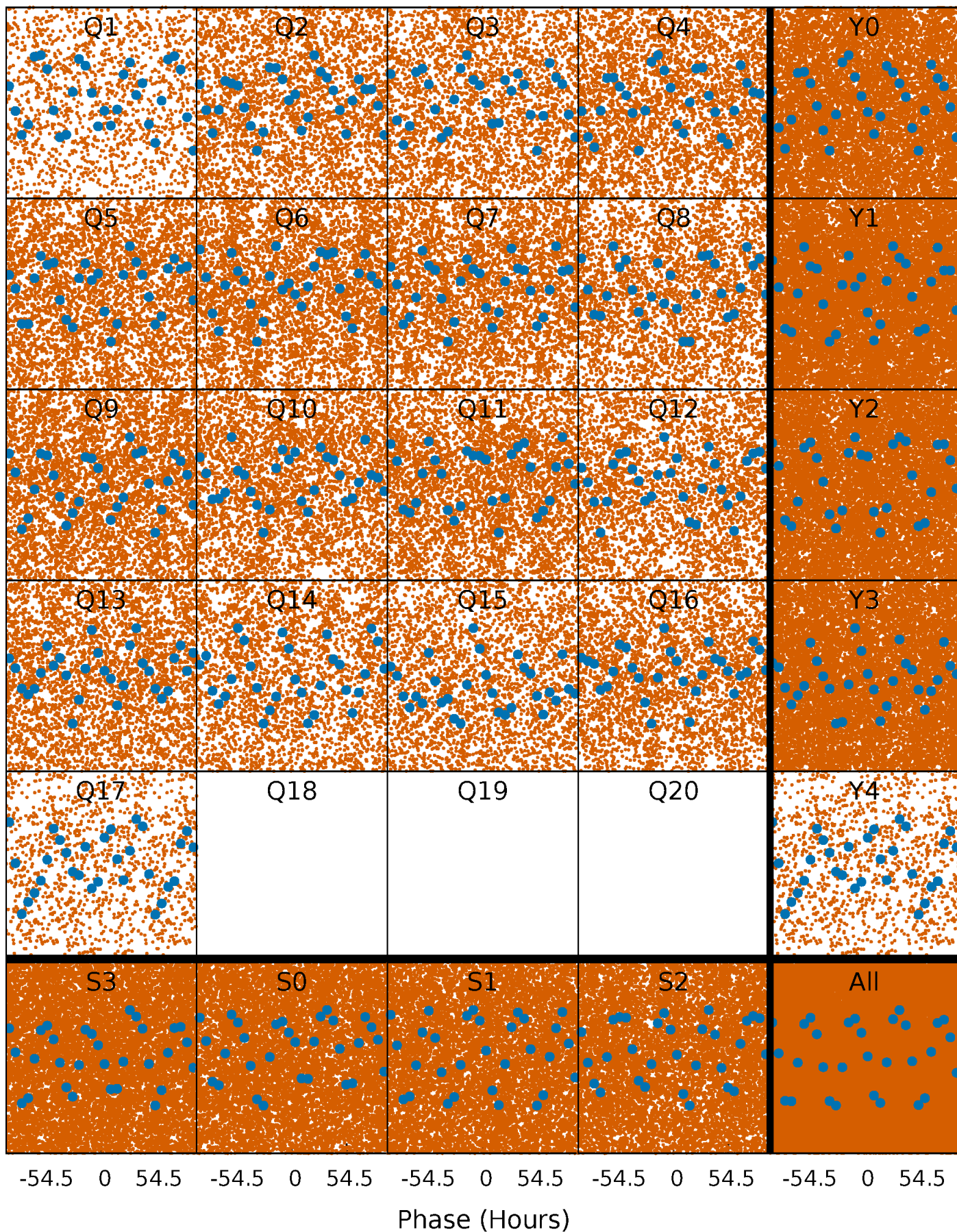


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



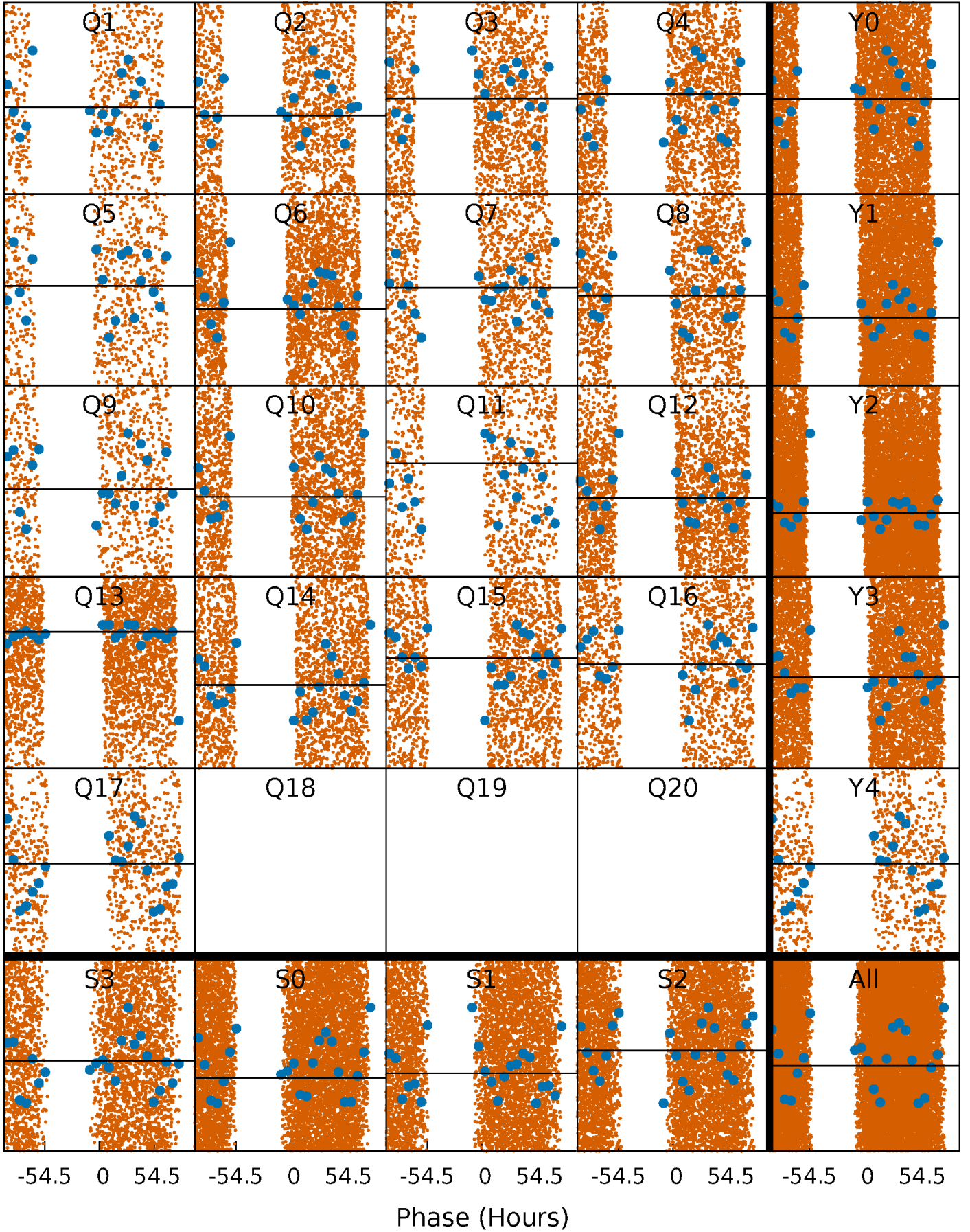
PDC Quarter-Phased Transit Curves

TCE 009428899-02 P= 5.519898 Days $T_0=134.298342$ (BKJD)



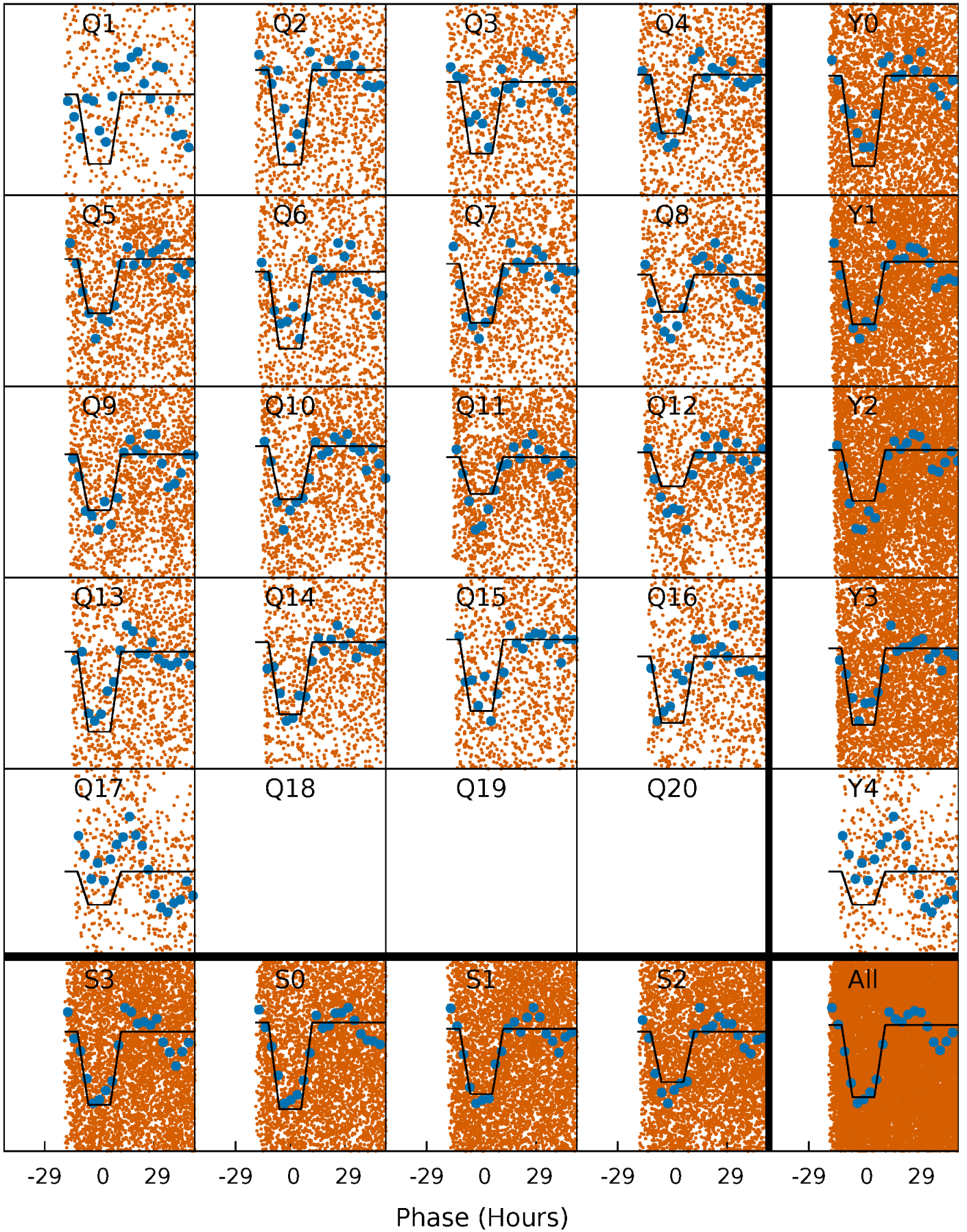
DV Quarter-Phased Transit Curves

TCE 009428899-02 P= 5.519898 Days $T_0=134.298342$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

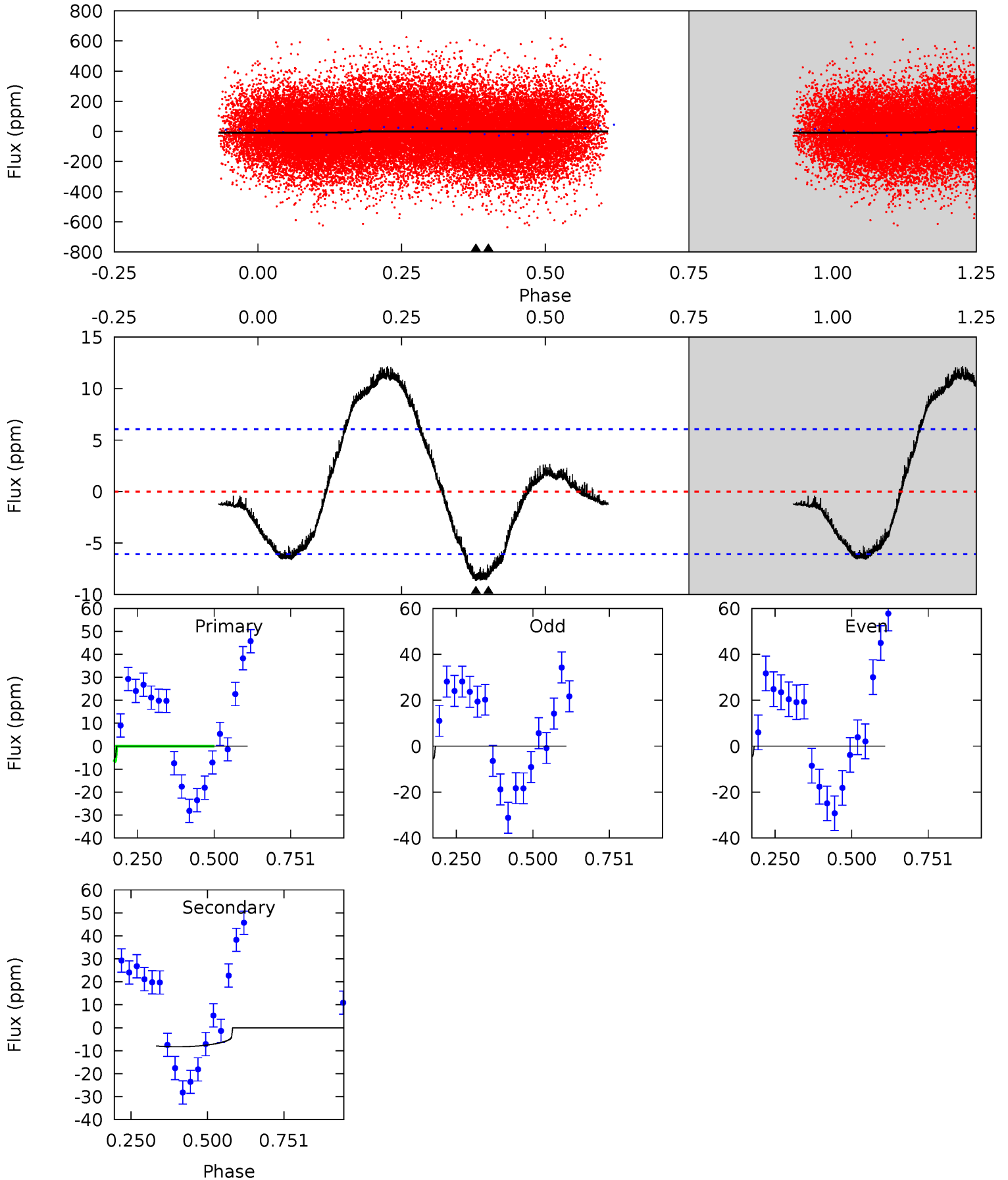
TCE 009428899-02 $P = 5.521789$ Days $T_0 = 134.687026$ (BKJD)



DV Model-Shift Uniqueness Test

009428899-02, P = 5.519898 Days, E = 128.778444 Days

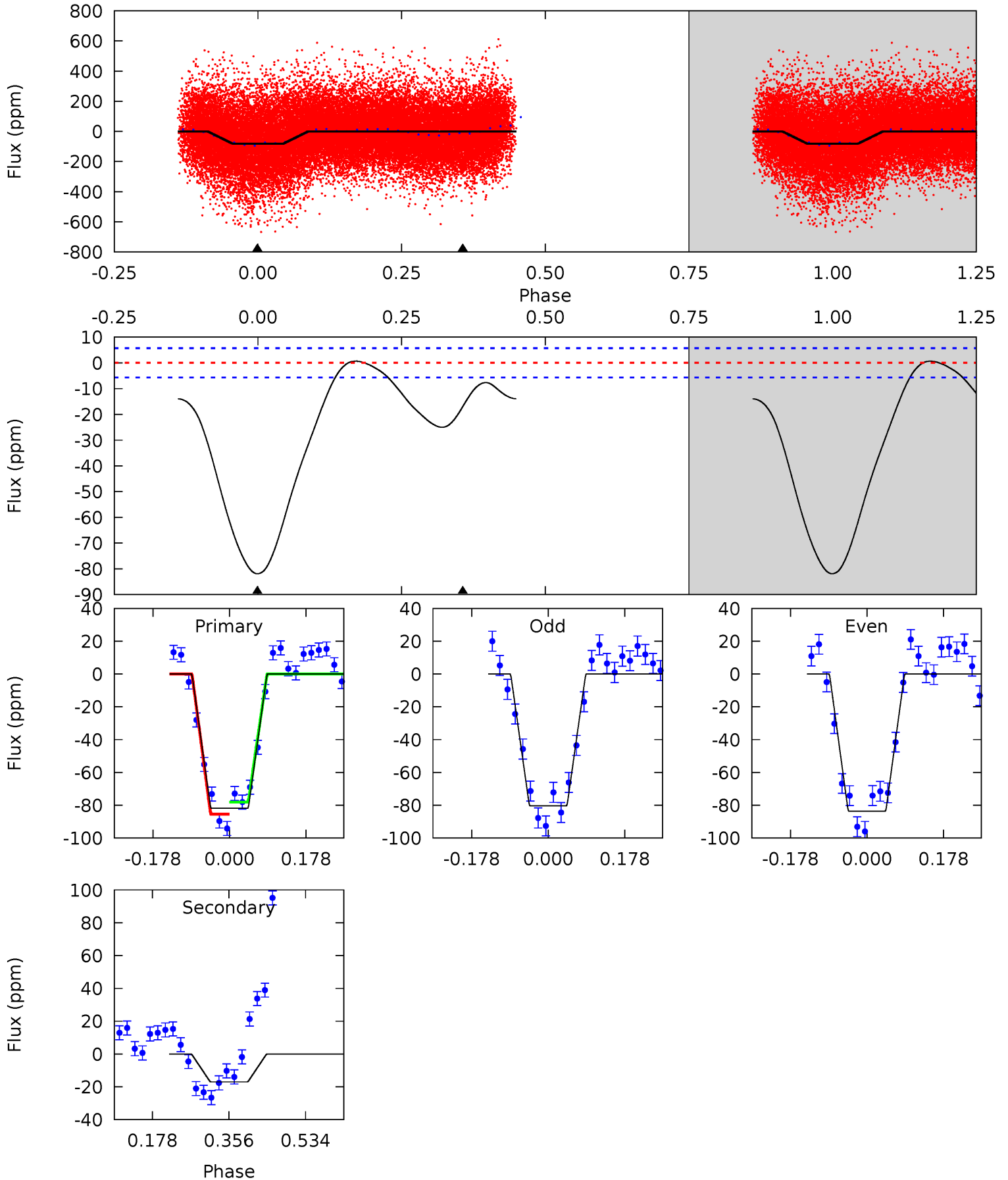
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.23	5.98	0	0	4.37	1.15	4.85	6.23	6.23	5.98	5.98	0.59	1.09	0.59	0.08



Alt Model-Shift Uniqueness Test

009428899-02, P = 5.521789 Days, E = 129.165237 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.0	13.3	0	0	4.44	1.35	0.63	64.0	64.0	13.3	13.3	1.28	1.10	0.01	2.48



Stellar Parameters For KIC 009428899

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6558^{+148}_{-214}	$4.342^{+0.072}_{-0.217}$	$0.020^{+0.250}_{-0.350}$	$1.252^{+0.457}_{-0.152}$	$1.261^{+0.195}_{-0.175}$	$0.905^{+0.274}_{-0.490}$
	+2%/-3%	+2%/-5%	+1250%/-1750%	+37%/-12%	+15%/-14%	+30%/-54%
Source	PHO1	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 009428899-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-8 ± 1	$4.75^{+5.46}_{-3.36}$	1730^{+568}_{-311}	2489^{+1319}_{-4760}	$0.999^{+12.117}_{-0.842}$
Alt.	-17 ± 1	$5.33^{+5.40}_{-3.68}$	1721^{+715}_{-294}	2730^{+1363}_{-4741}	$1.516^{+14.396}_{-1.266}$

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

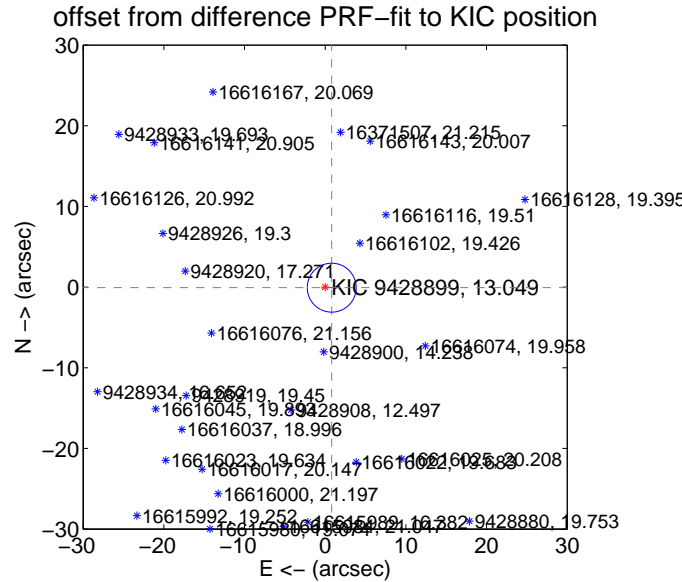
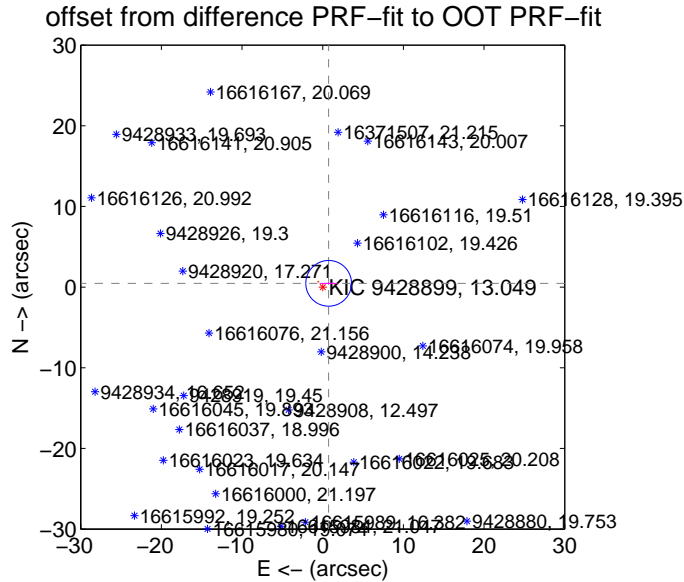
DV Centroid Data

Supplemental centroid analysis for 009428899-02. Kepler magnitude: 13.05. Transit SNR 0.00

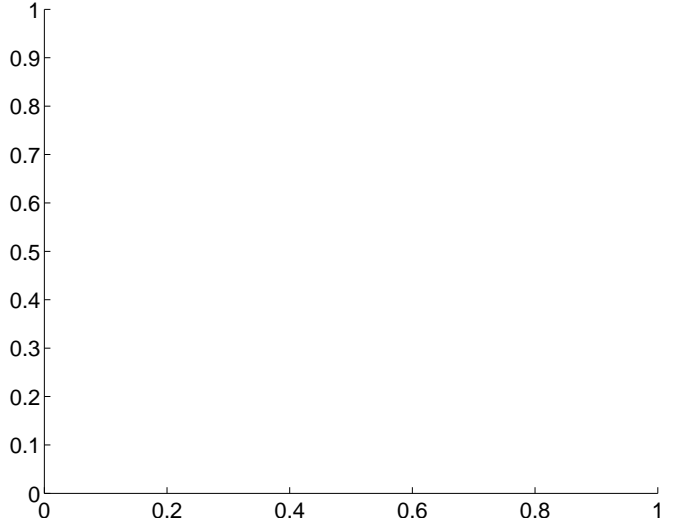
There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.79 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.872 ± 0.944	0.92	-0.736 ± 1.113	0.467 ± 0.176
PRF-fit source offset from KIC position	0.812 ± 1.011	0.80	-0.809 ± 1.015	-0.071 ± 0.069
photometric centroid source offset	—	—	—	—

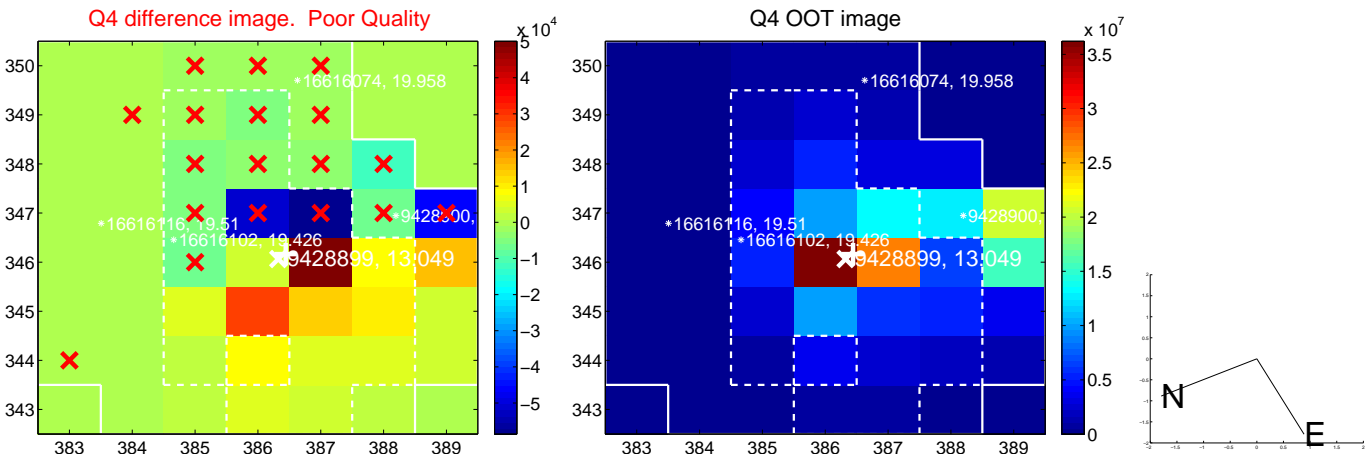
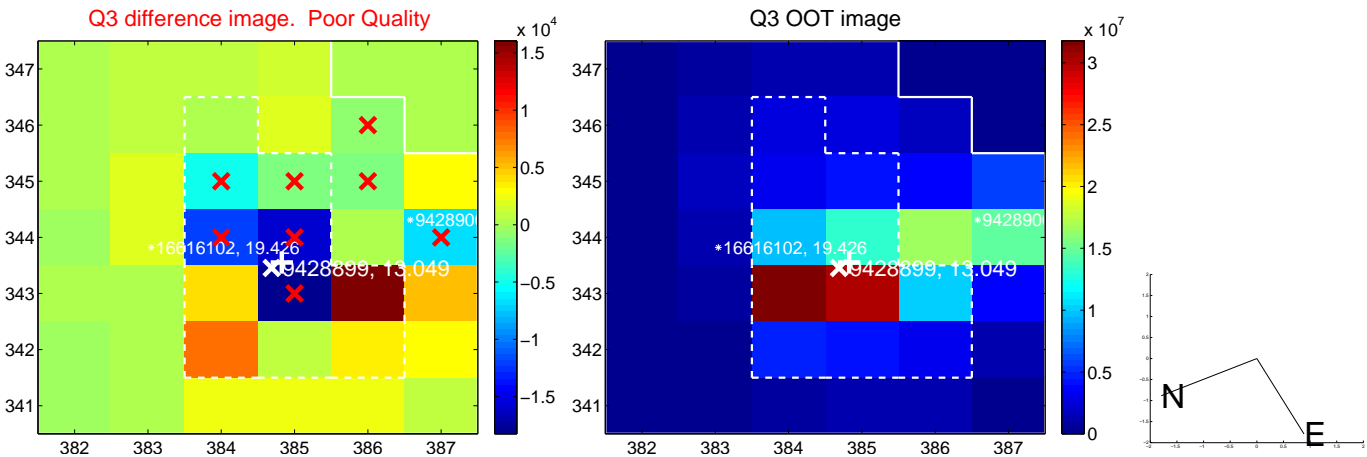
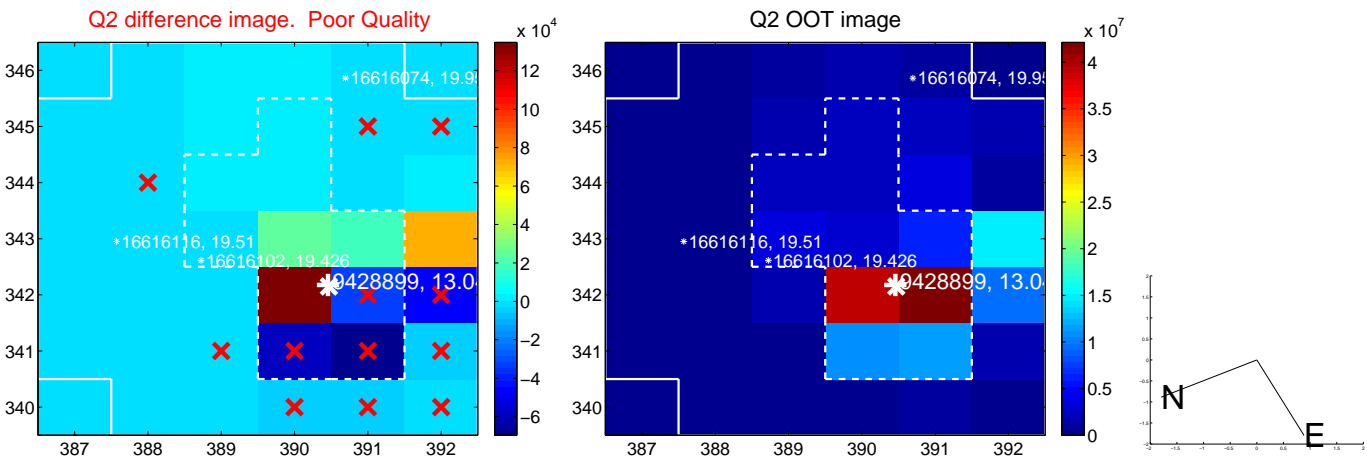
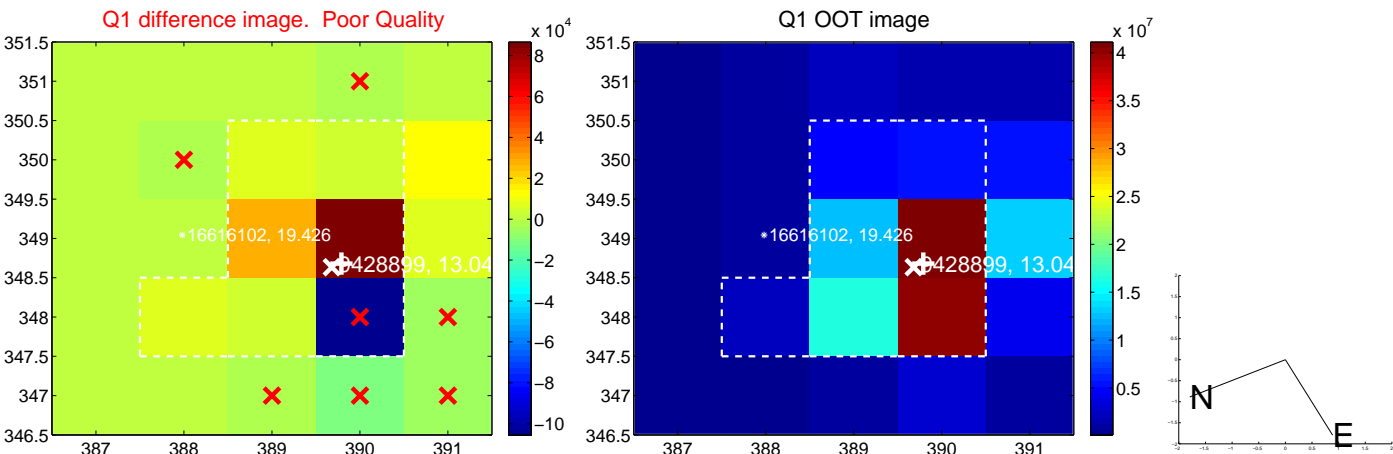


There are no photometric centroids

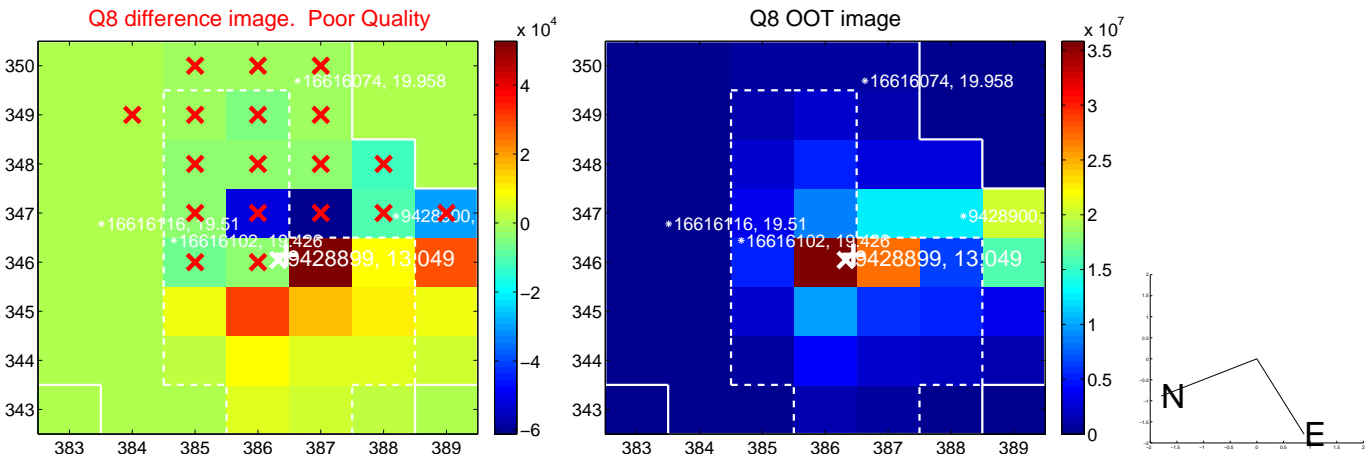
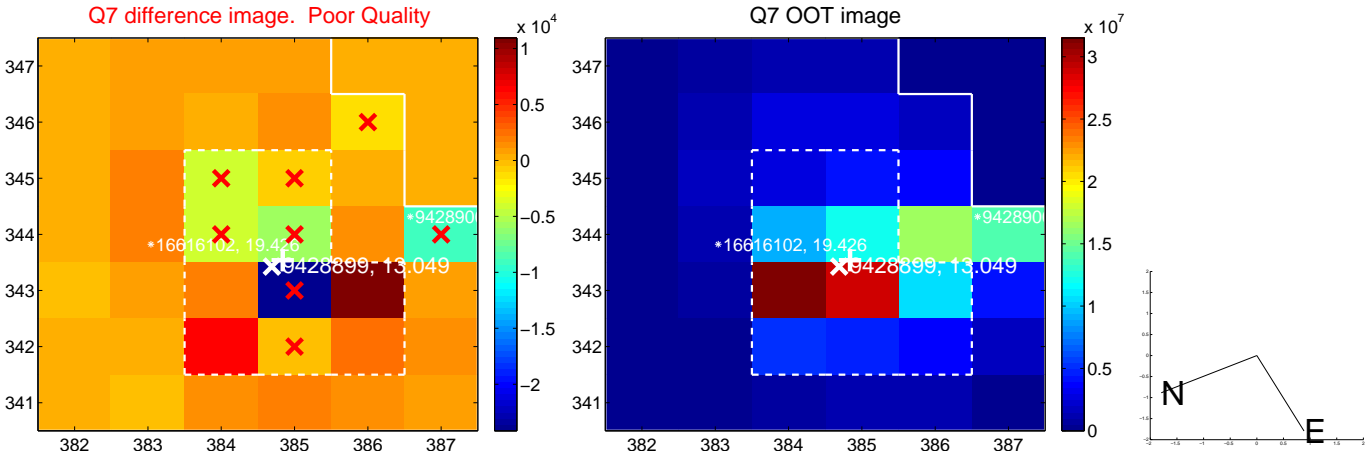
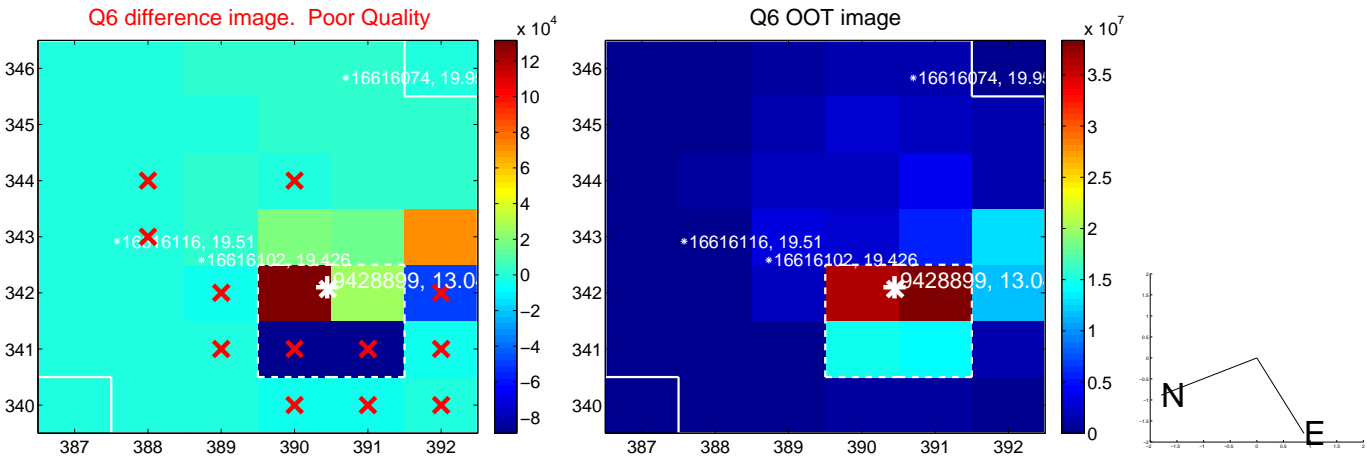
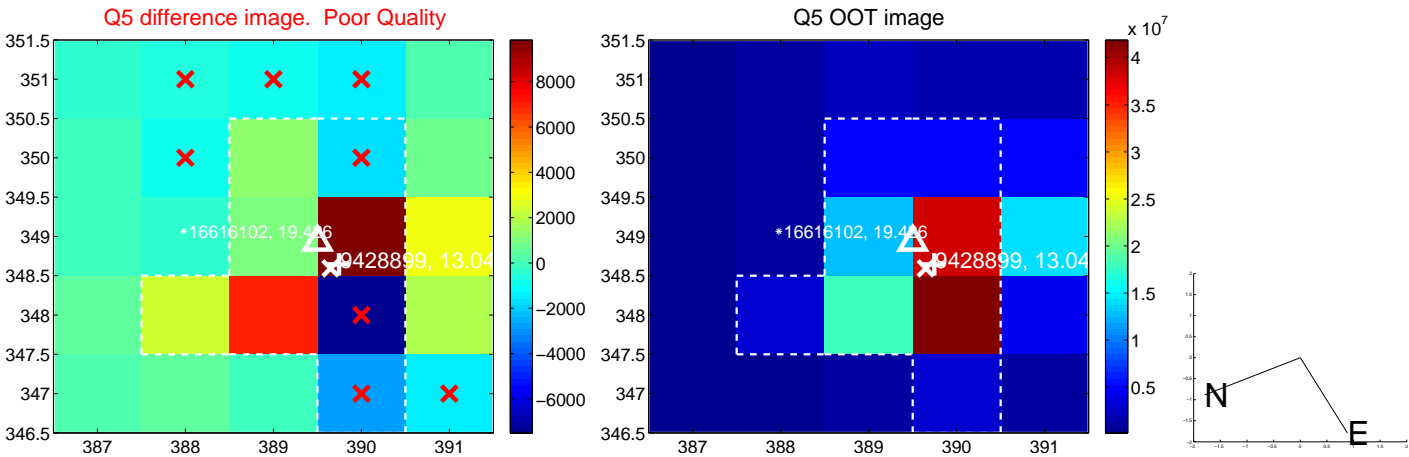


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

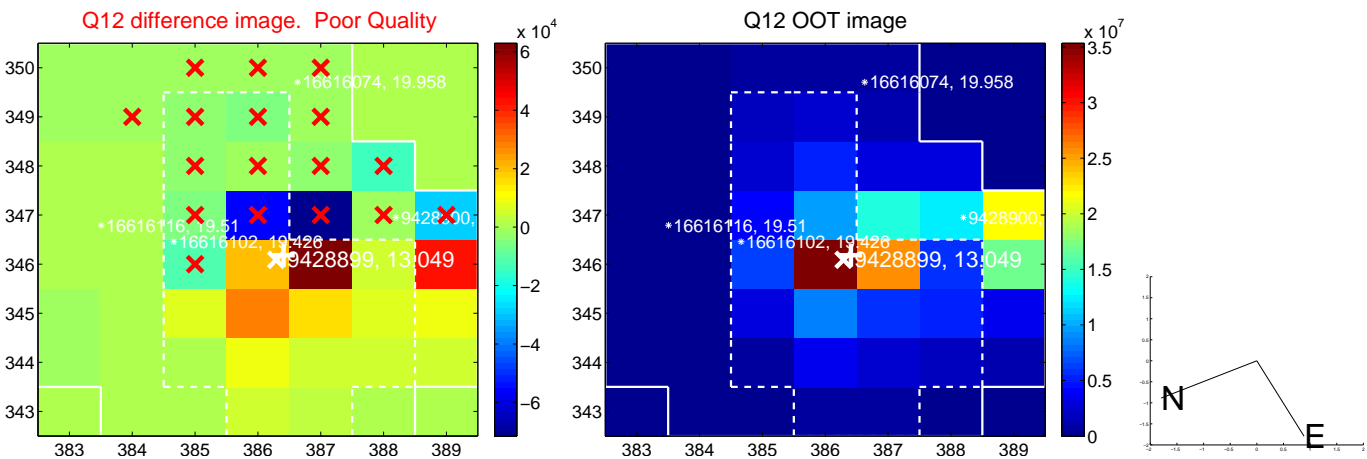
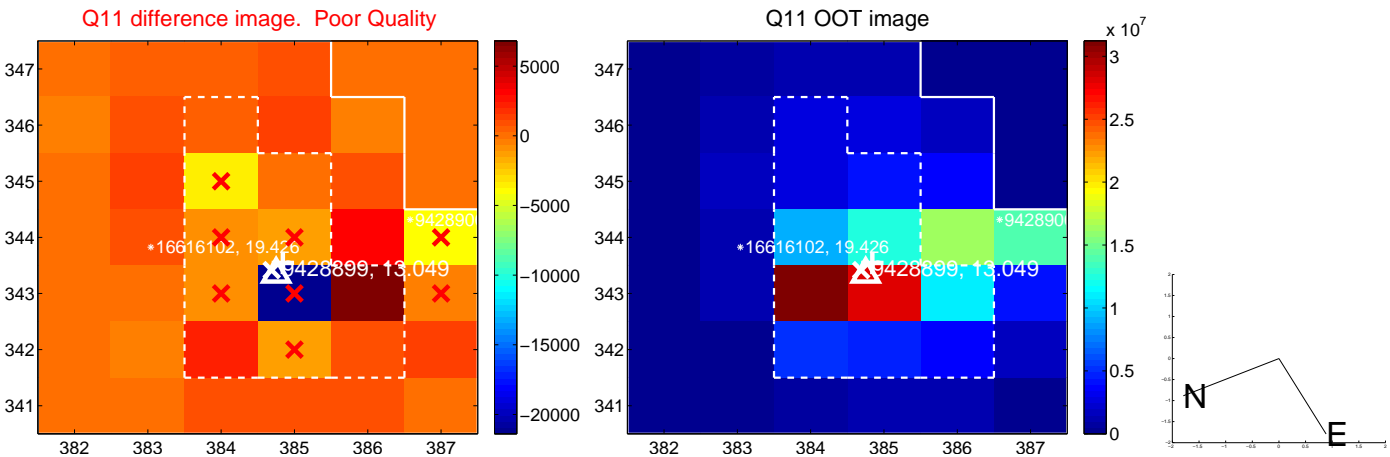
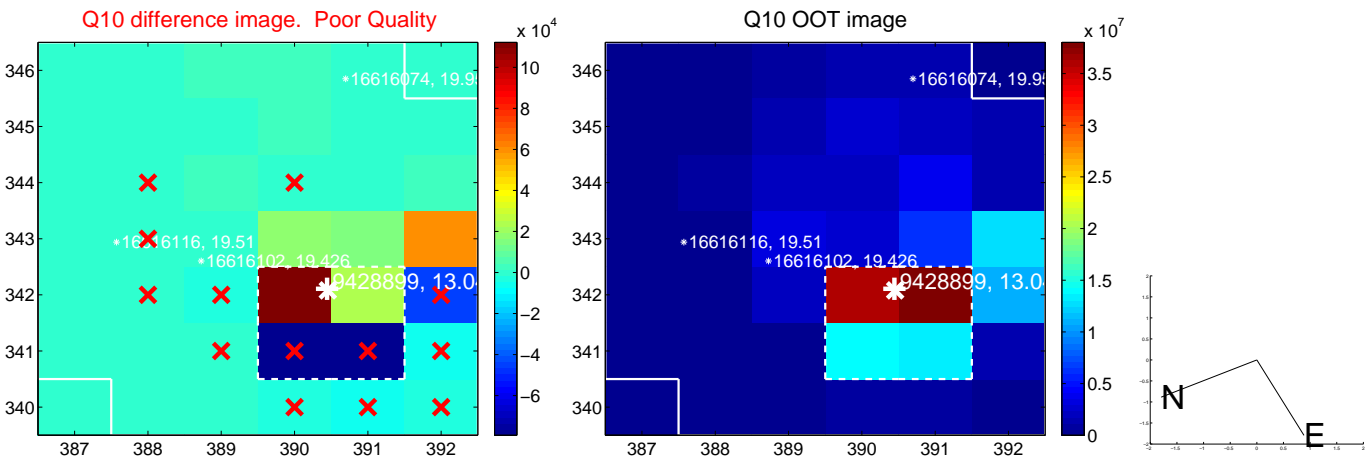
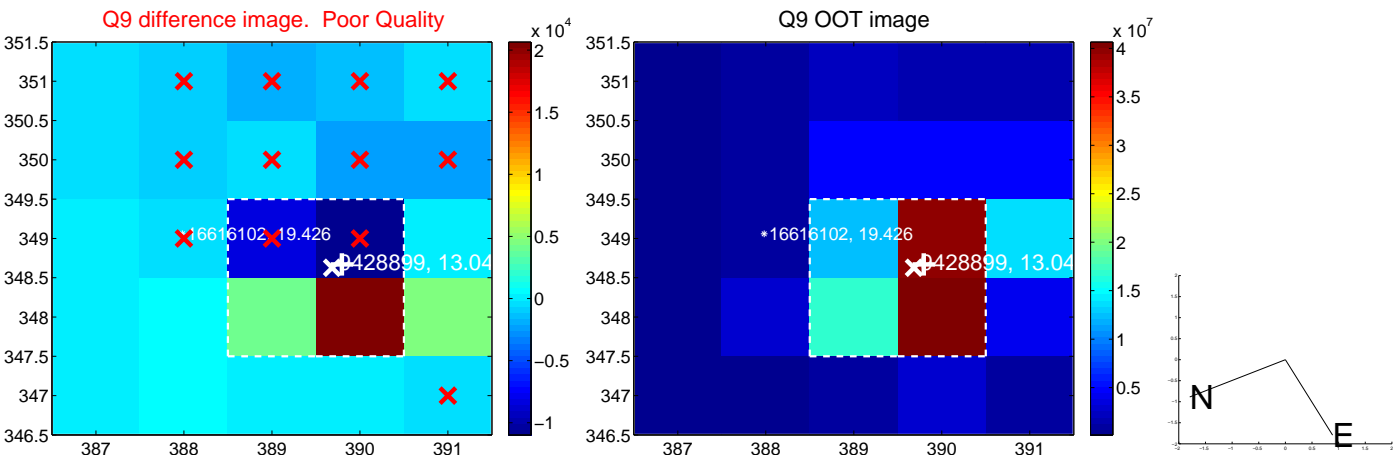
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



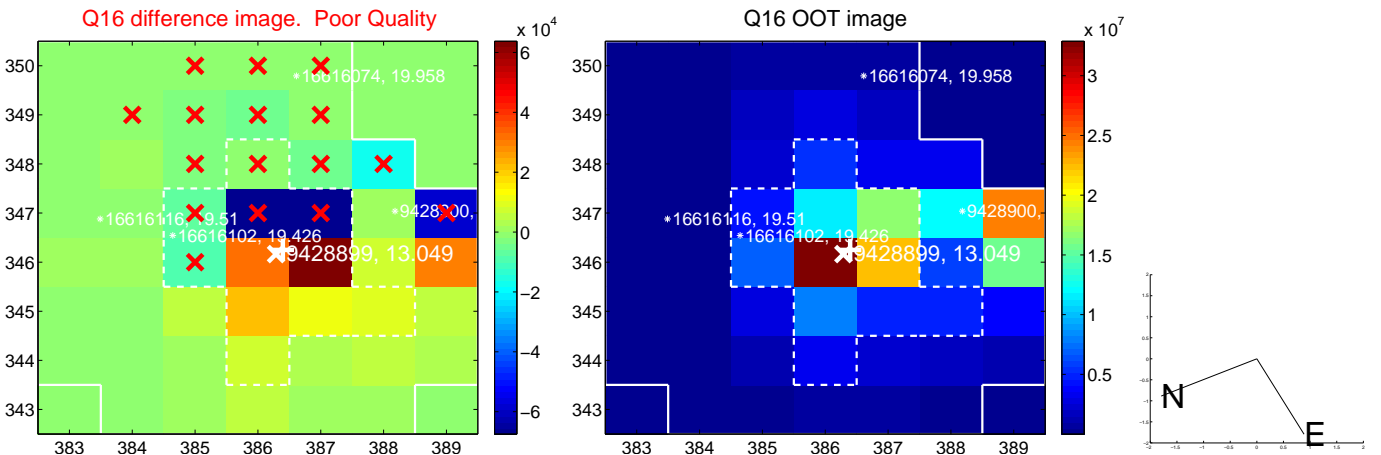
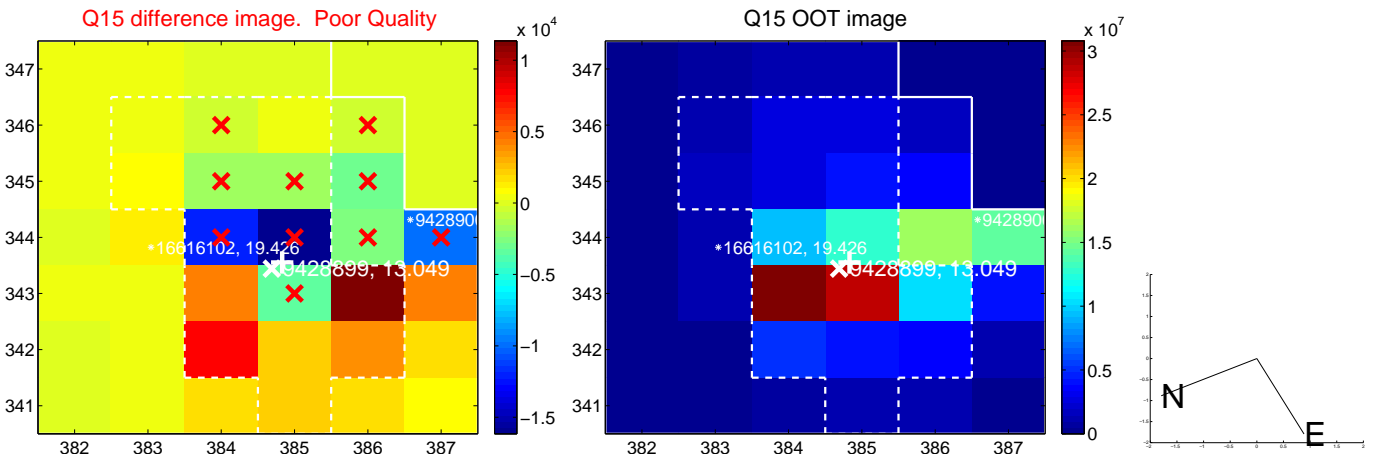
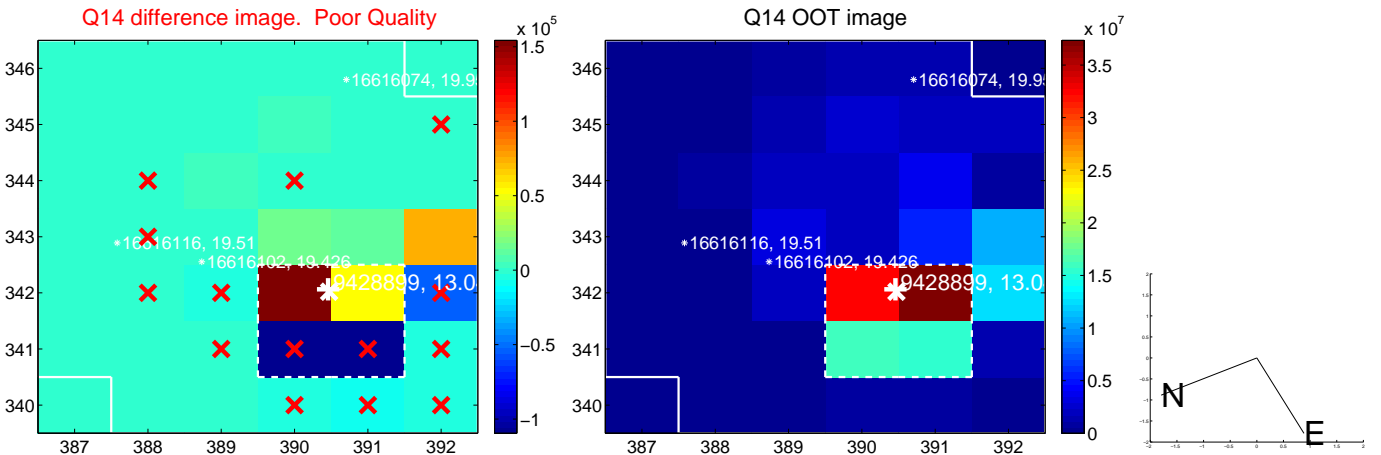
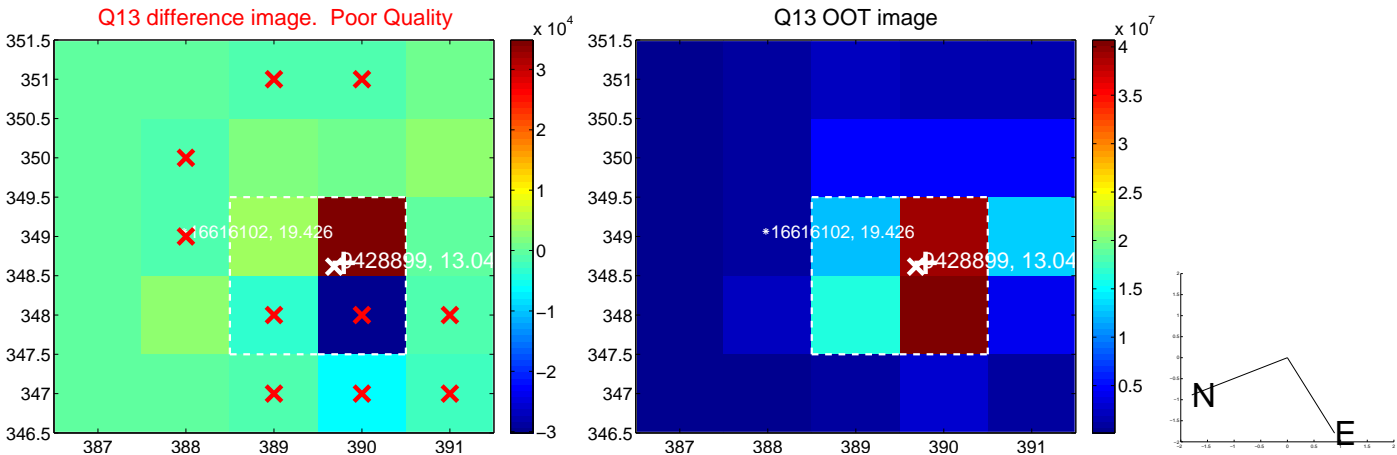
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



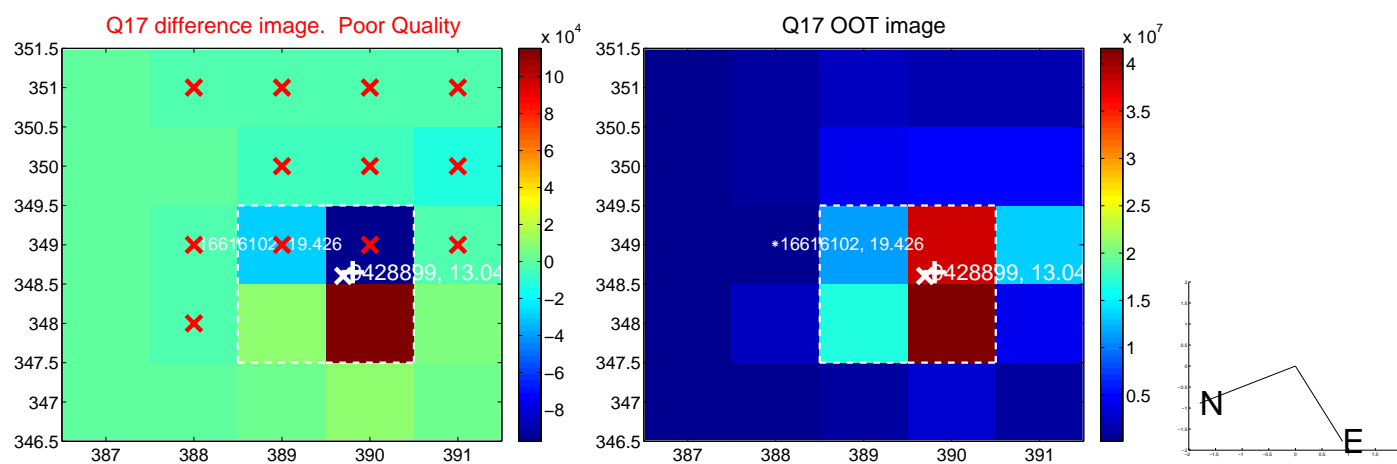
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



folded centroid time series figure for this object.



UKIRT Image

Declination

