

KIC 008687088

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})
008687088-01	OBS	2749.01	0.905033	132.217381	29.2	1.609	17.8	22.2	1.76	6223	1.12	11276.53
008687088-02	OBS	No	399.338255	339.411612	104.5	13.953	7.6	6.4	1.76	6223	2.02	3.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008687088-01	OBS	FP	0.00	0	0	1	0	CENT_SATURATED—HALO_GHOST
008687088-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—INCONSISTENT_TRANS—CENT_SATURATED

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.

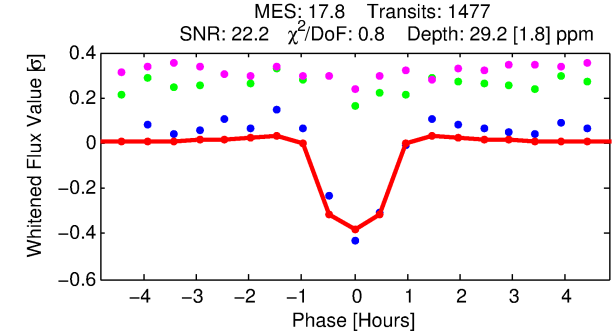
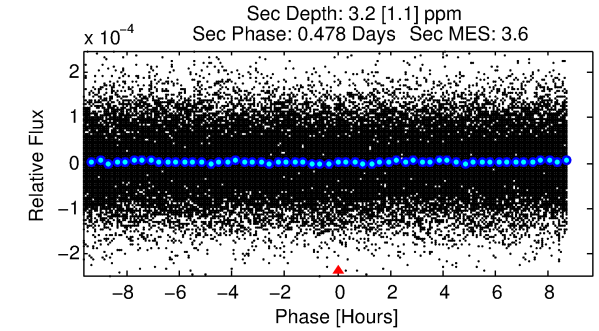
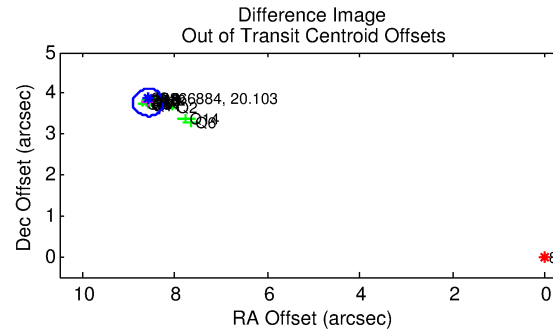
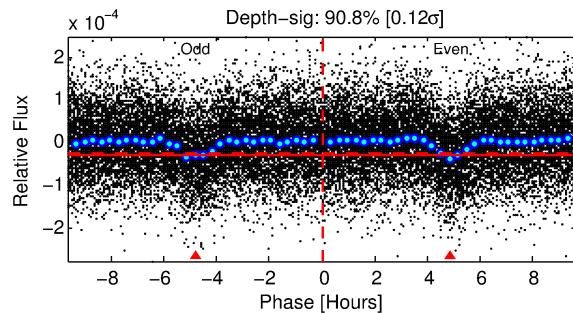
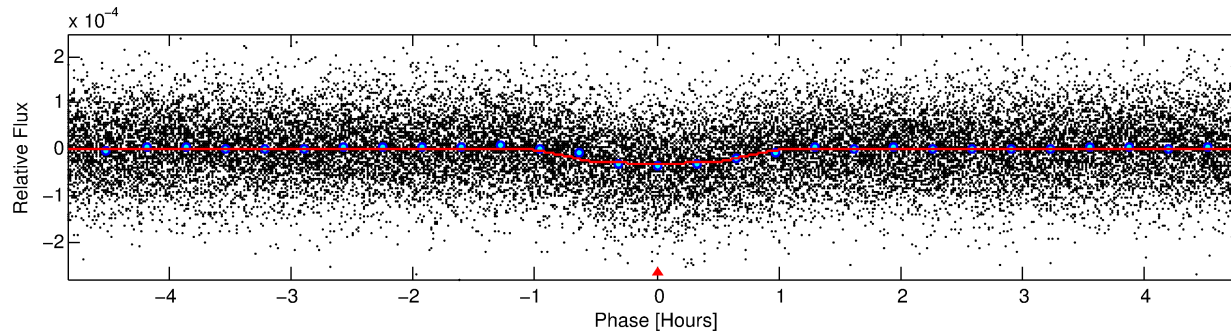
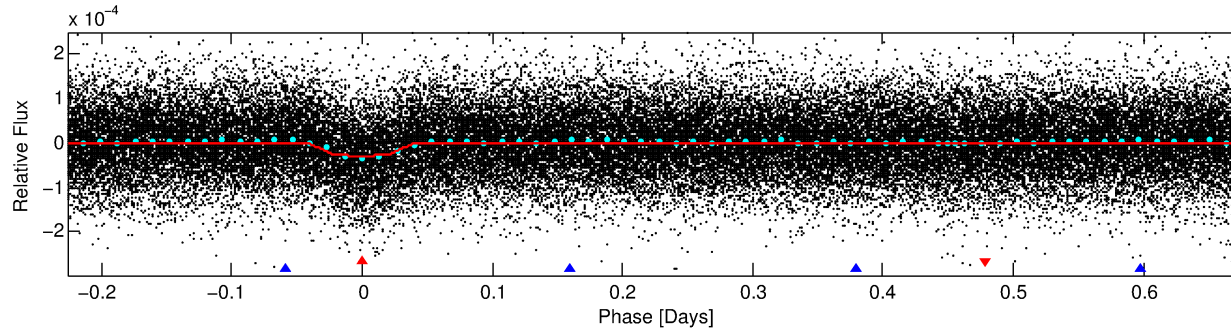
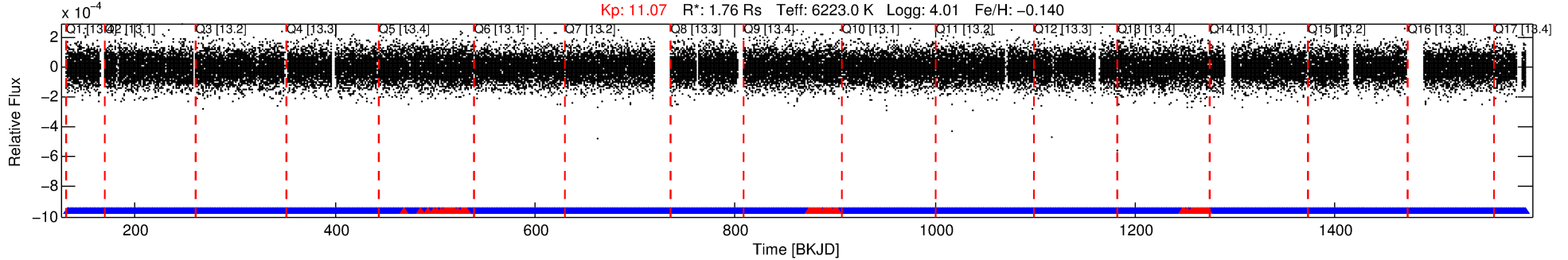
Ephemeris Match Information For 008687088-01

No Significant Match Found

DV One-Page Summary

KIC: 8687088 Candidate: 1 of 2 Period: 0.905 d
KOI: K02749.01 Corr: 0.934

Kp: 11.07 R*: 1.76 Rs Teff: 6223.0 K Logg: 4.01 Fe/H: -0.140



DV Fit Results:

Period = 0.90503 [0.00000] d
Epoch = 132.2174 [0.0010] BKJD
Rp/R* = 0.0058 [0.0009]
a/R* = 2.13 [1.38]
b = 0.90 [0.17]
Seff = 11276.53 [6934.90]
Teq = 2628 [404] K
Rp = 1.12 [0.46] Re
a = 0.0192 [0.0071] AU
Ag = 0.51 [0.38] [-1.26σ]
Teffp = 3441 [413] K [1.41σ]

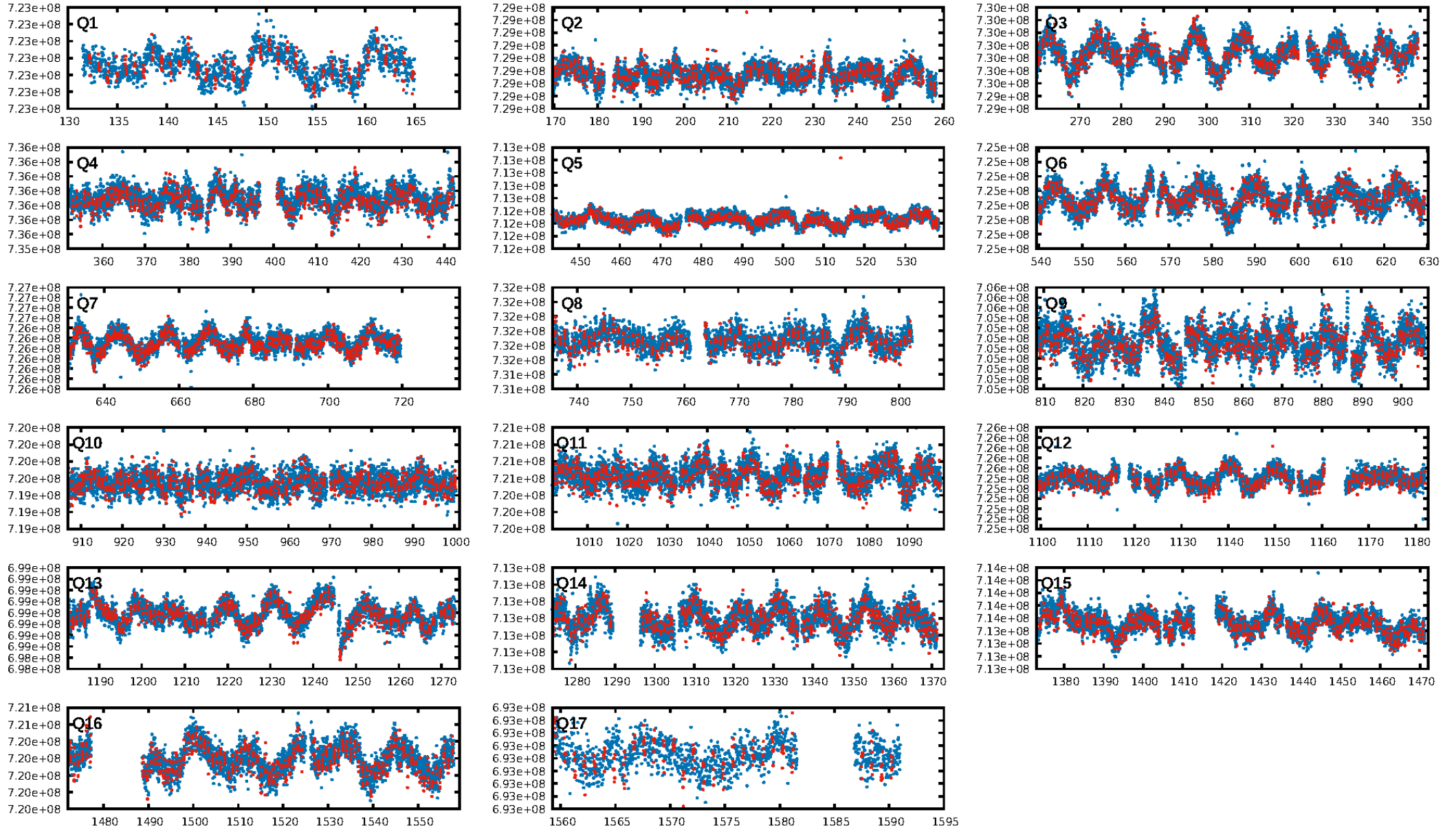
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [680.83σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.05e-63
RollingBand-fgt: 0.95 [1342/1411]
GhostDiagnostic-chr: 0.004563
Centroid-sig: 0.0%
Centroid-so: 9.143 arcsec [19.01σ]
OotOffset-rm: 9.378 arcsec [84.46σ]
KicOffset-rm: 9.420 arcsec [111.66σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.94 [15/16]
DiffImageOverlap-fno: 1.00 [17/17]

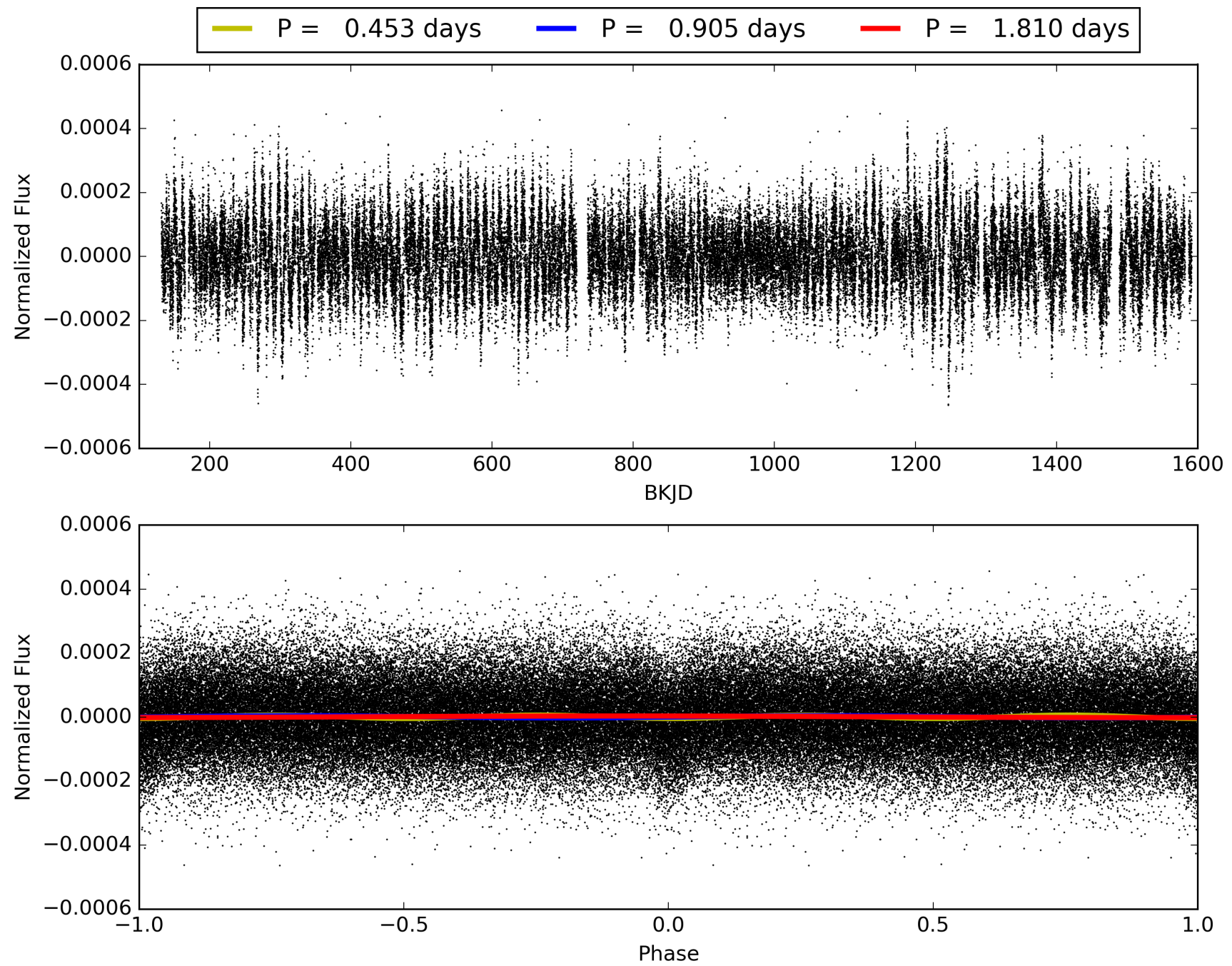
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008687088-01, PDC Light Curves

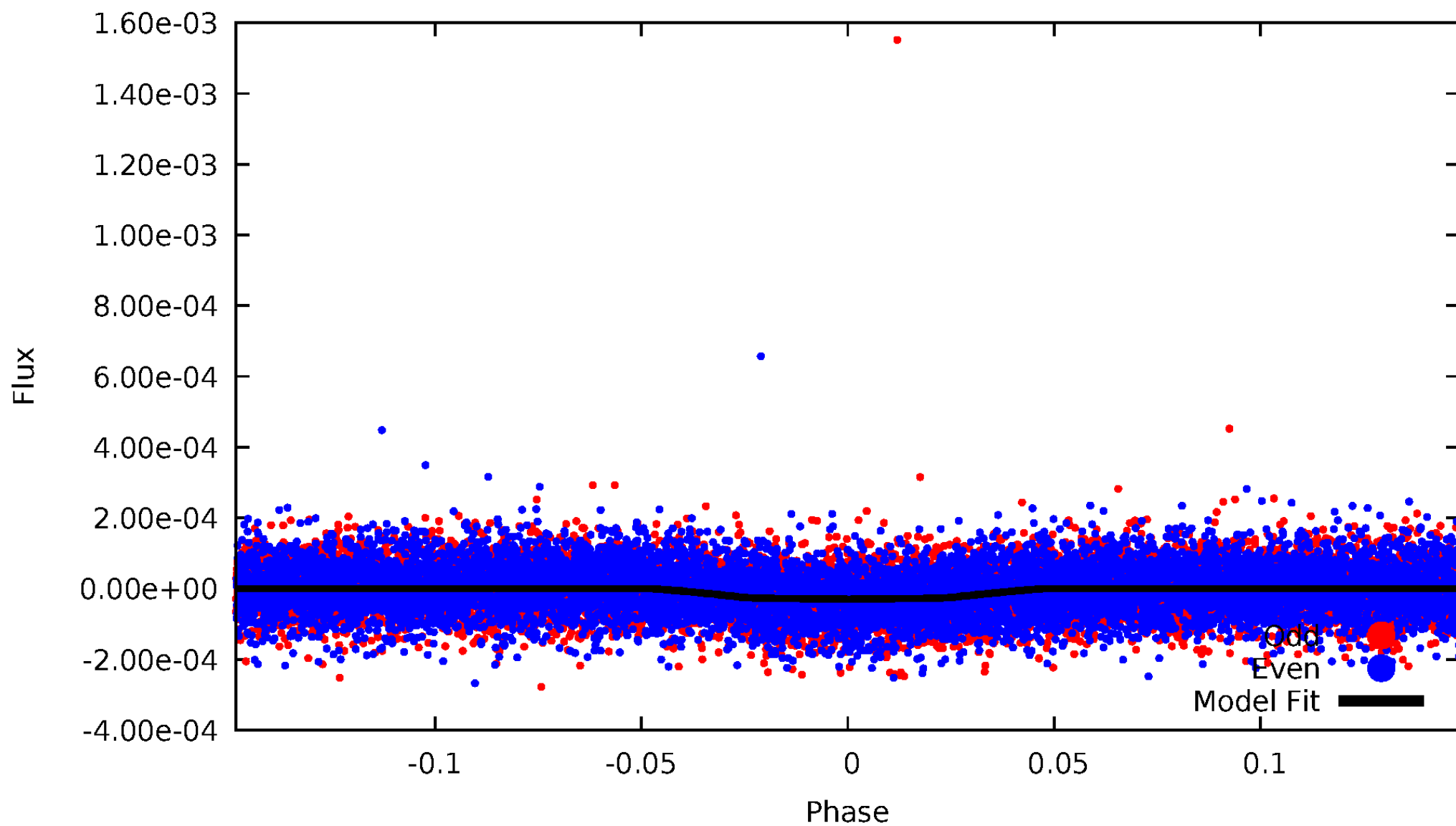


TCE 008687088-01



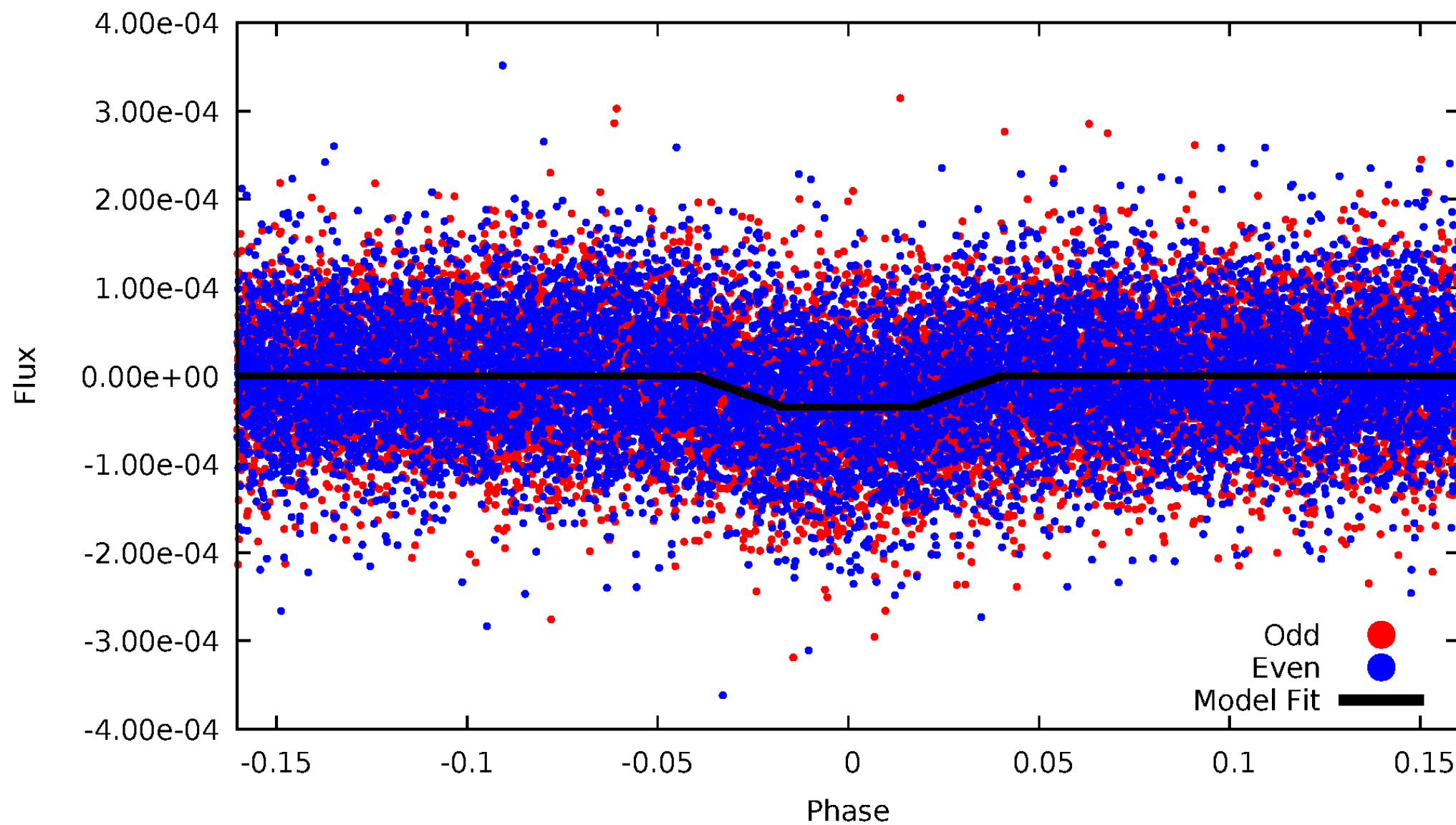
DV Odd/Even

TCE 008687088-01

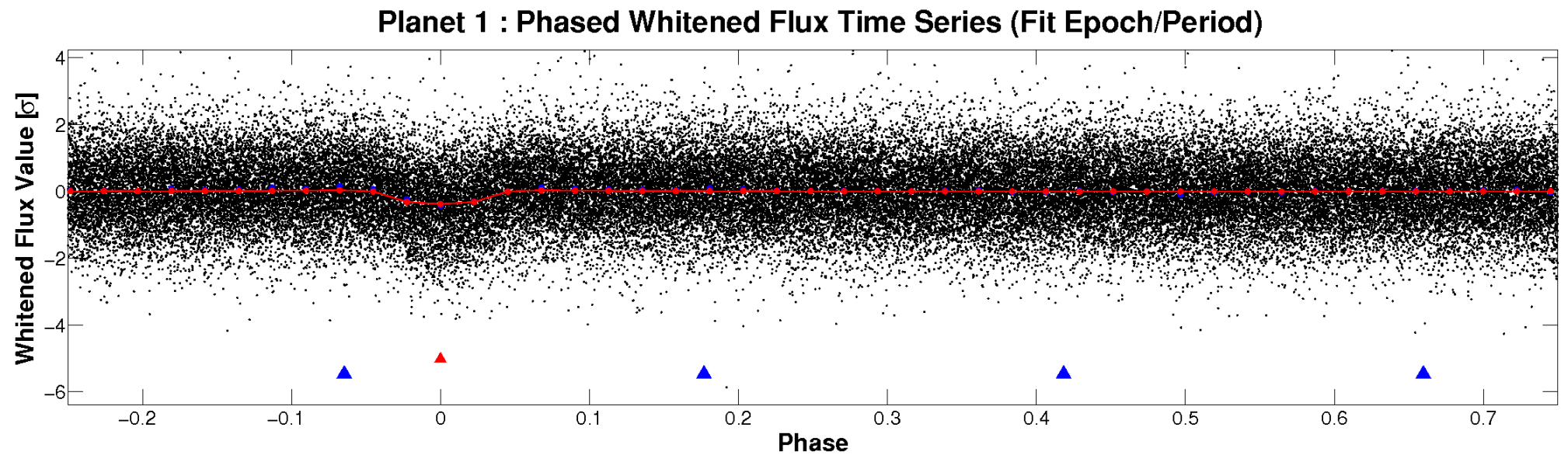
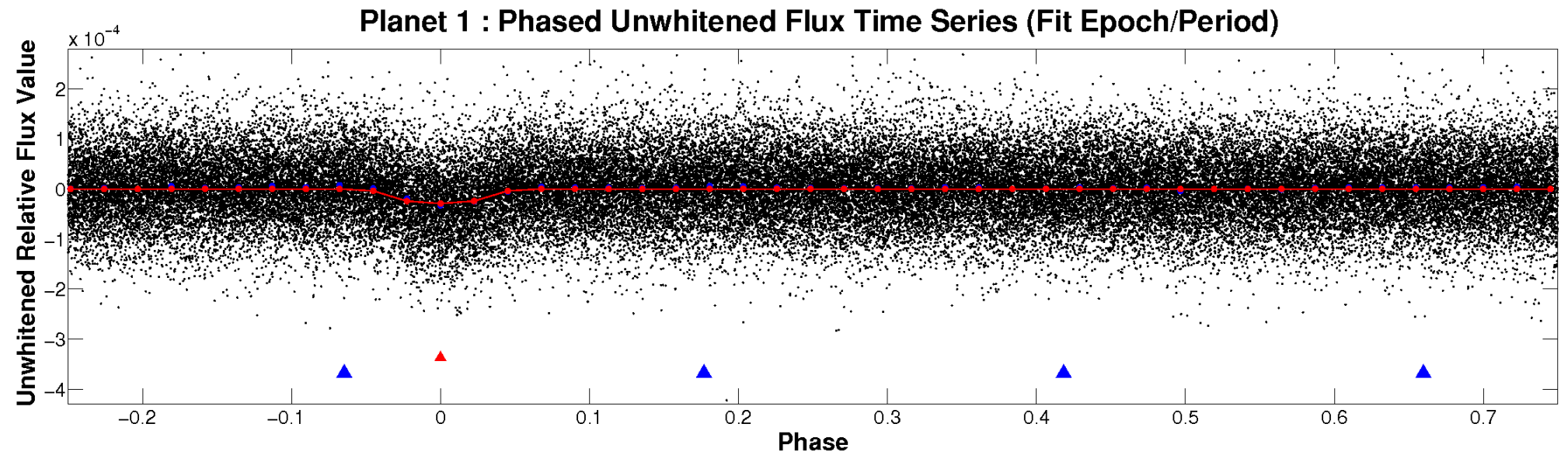


ALT Odd/Even

TCE 008687088-01

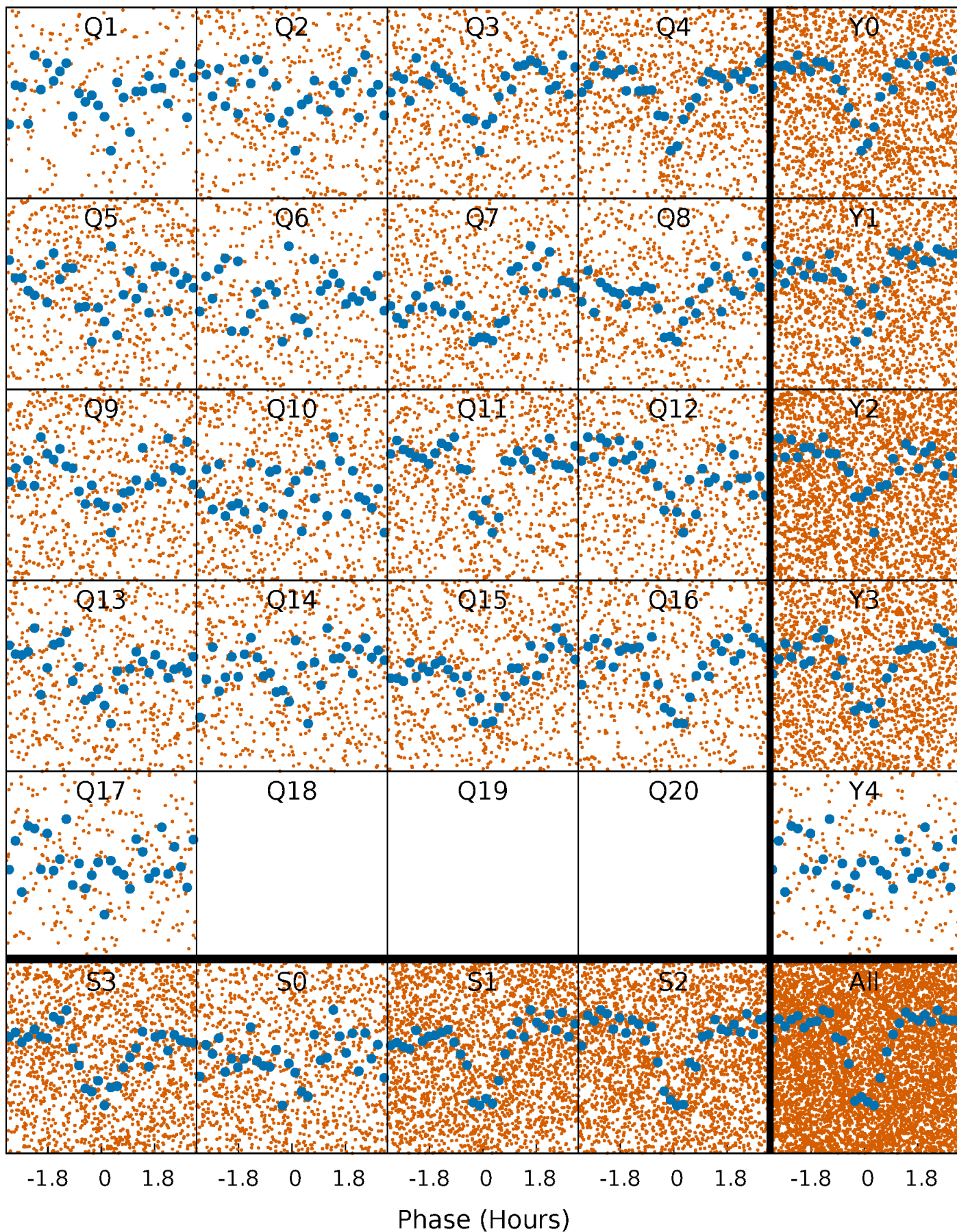


Non-Whitened Vs. Whitened Light Curve



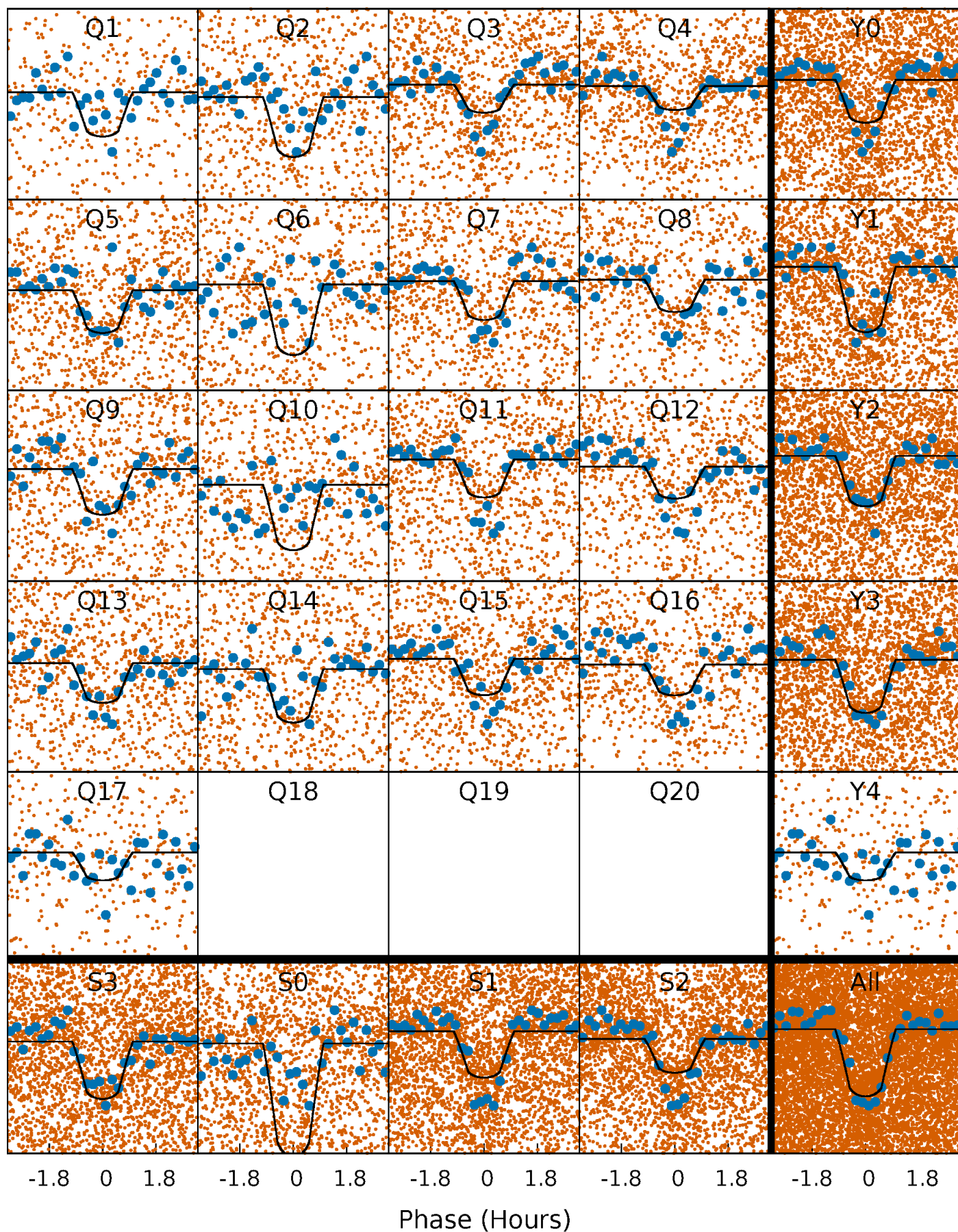
PDC Quarter-Phased Transit Curves

TCE 008687088-01 P= 0.905033 Days $T_0=132.217381$ (BKJD)



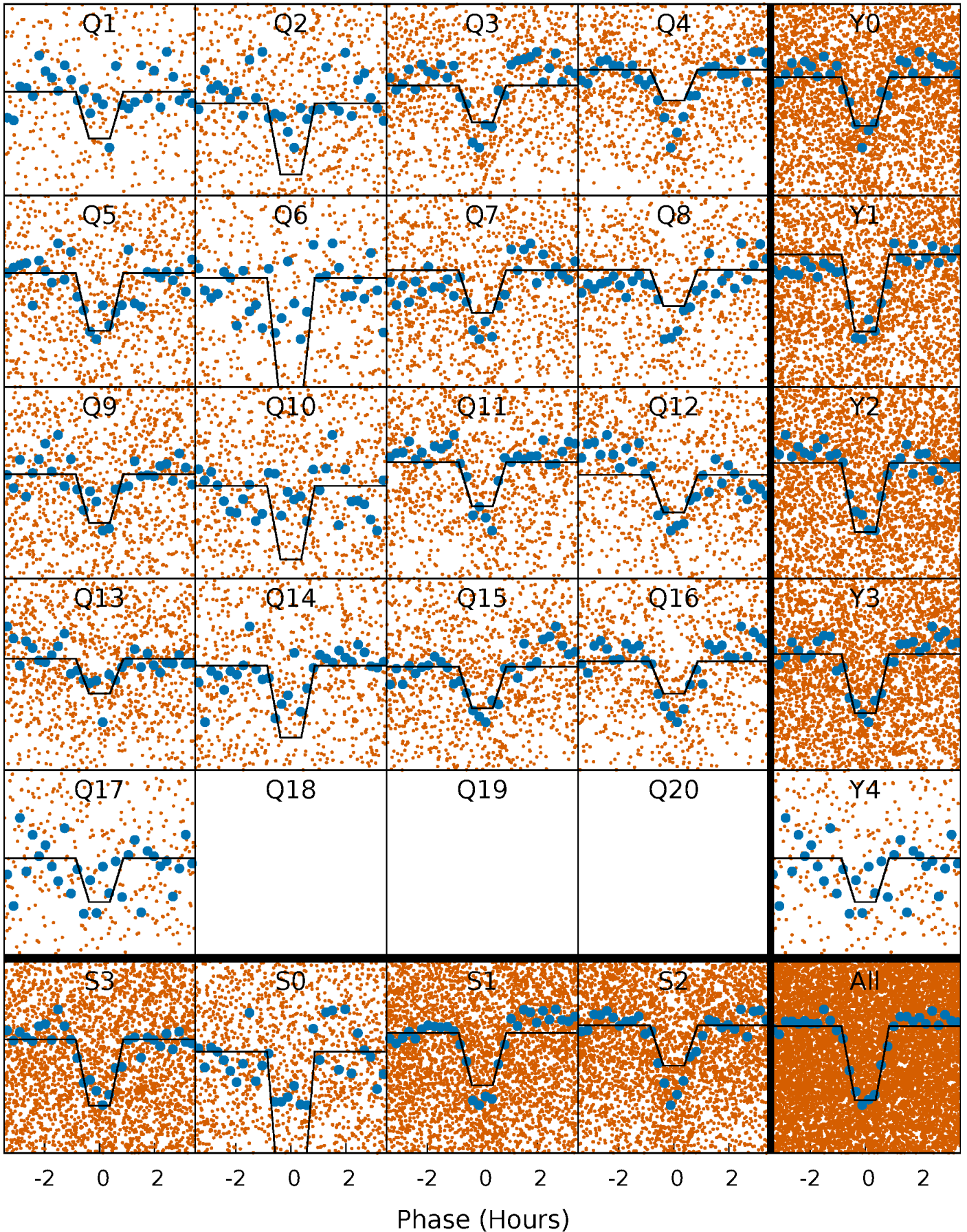
DV Quarter-Phased Transit Curves

TCE 008687088-01 P= 0.905033 Days $T_0=132.217381$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

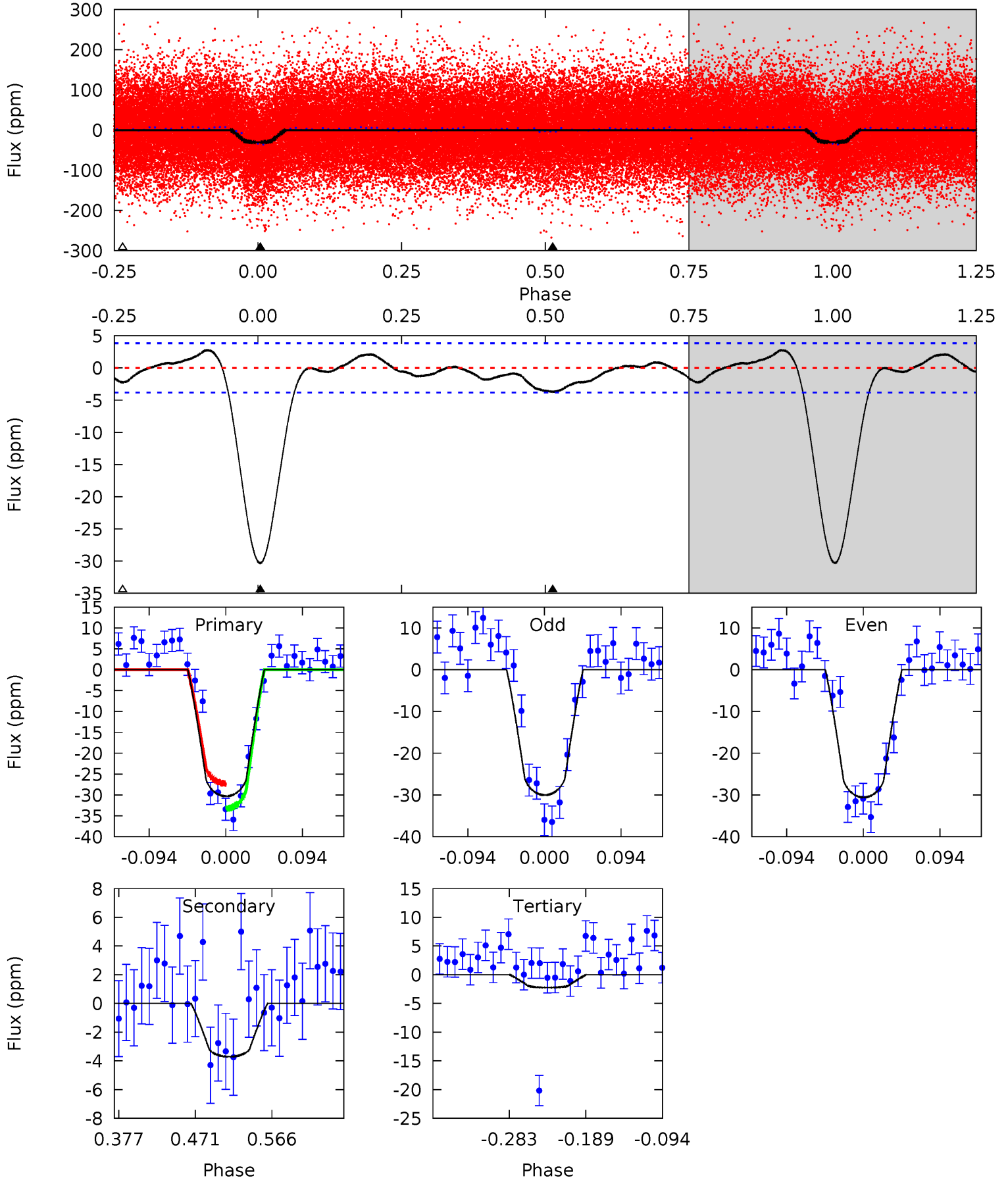
TCE 008687088-01 P= 0.905037 Days $T_0=132.216538$ (BKJD)



DV Model-Shift Uniqueness Test

008687088-01, P = 0.905033 Days, E = 131.312348 Days

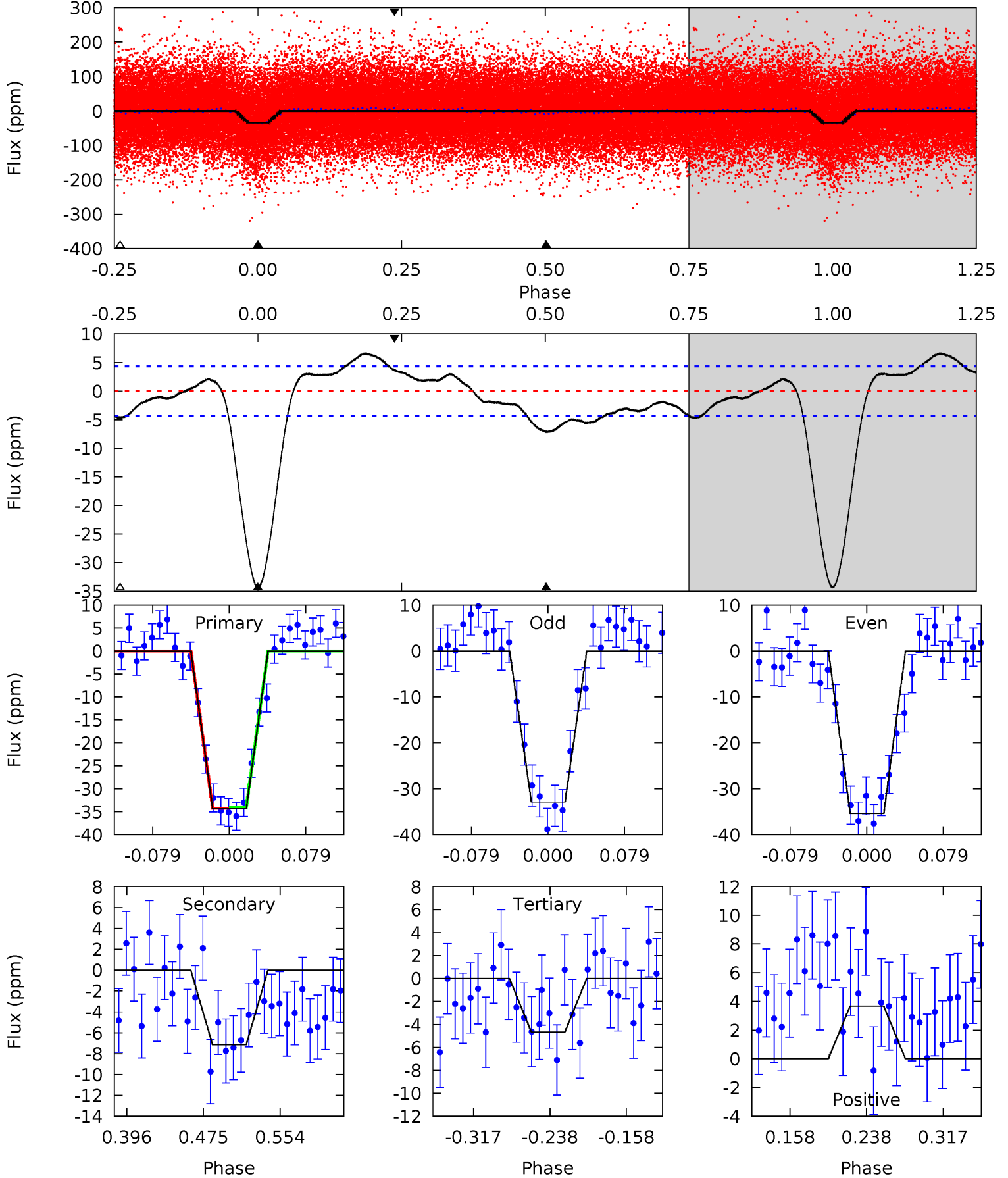
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.2	4.43	2.67	0	4.58	1.67	1.29	33.6	36.2	1.76	4.43	0.33	0.99	0.08	3.58



Alt Model-Shift Uniqueness Test

008687088-01, P = 0.905037 Days, E = 131.311501 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.6	7.63	4.96	3.92	4.61	1.76	3.43	31.6	32.7	2.67	3.71	1.34	0.95	0.16	0.11



Stellar Parameters For KIC 008687088

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6223^{+199}_{-243}	$4.010^{+0.350}_{-0.150}$	$-0.140^{+0.250}_{-0.300}$	$1.763^{+0.450}_{-0.675}$	$1.159^{+0.189}_{-0.208}$	$0.298^{+0.750}_{-0.123}$
	+3%/-4%	+9%/-4%	+179%/-214%	+26%/-38%	+16%/-18%	+252%/-41%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008687088-01 / KOI 2749.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-4 ± 1	$1.07^{+0.26}_{-0.24}$	3580^{+349}_{-339}	3491^{+410}_{-560}	$0.633^{+0.487}_{-0.252}$
Alt.	-7 ± 1	$1.08^{+0.25}_{-0.26}$	3596^{+303}_{-376}	4170^{+392}_{-331}	$1.257^{+0.938}_{-0.431}$

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

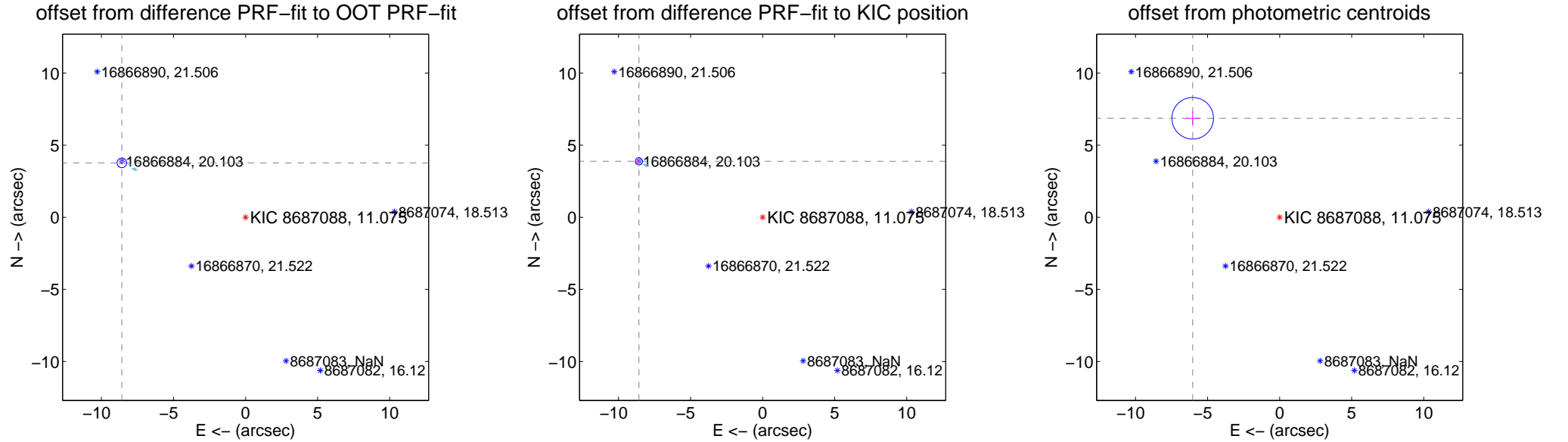
DV Centroid Data

Supplemental centroid analysis for 008687088-01. **Kepler magnitude: 11.07.** Transit SNR 22.20

There are 15 quarters with good PRF difference image offsets

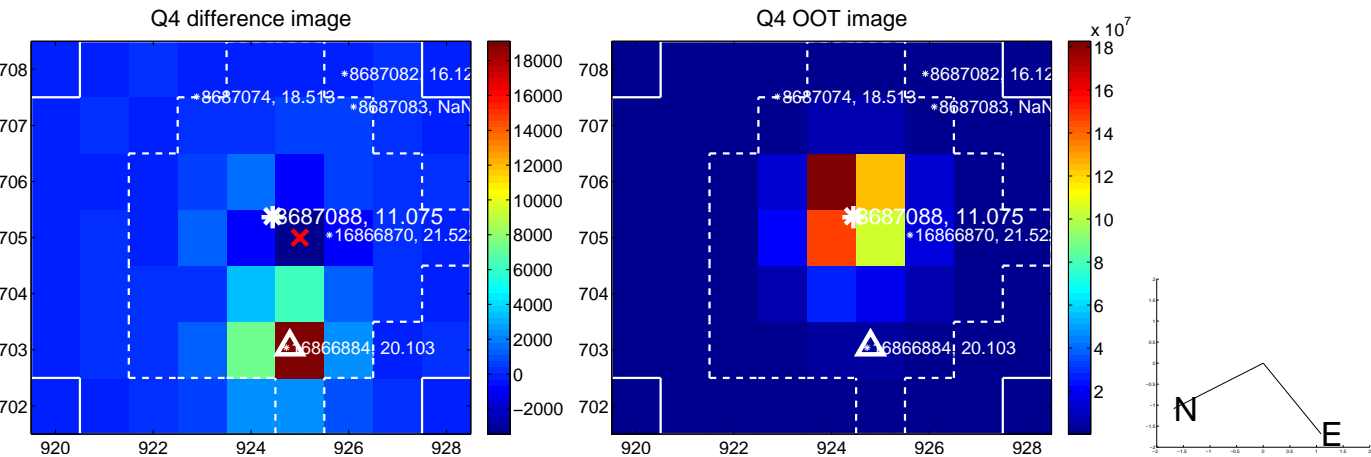
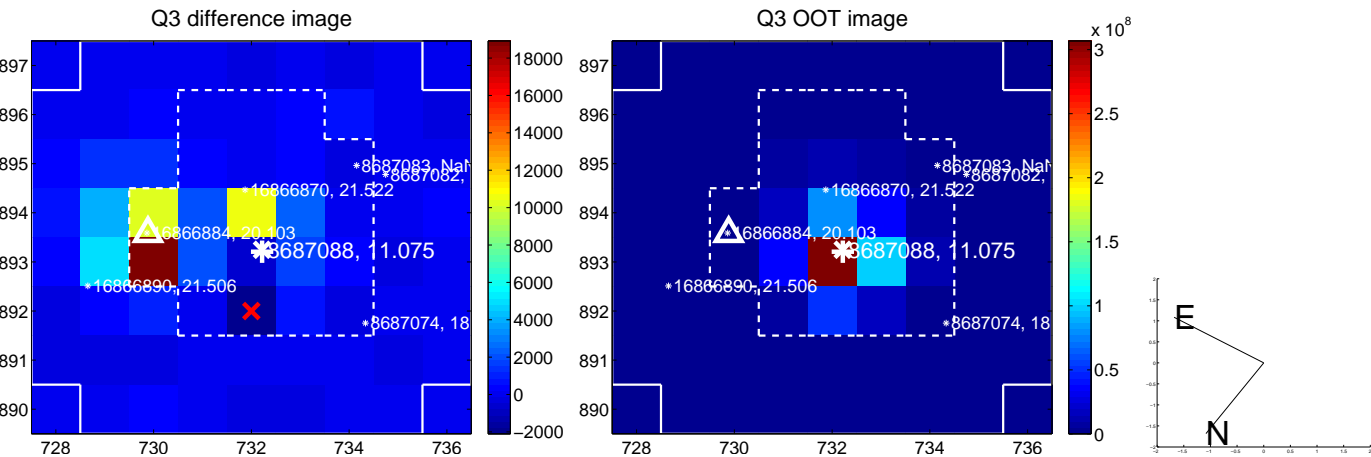
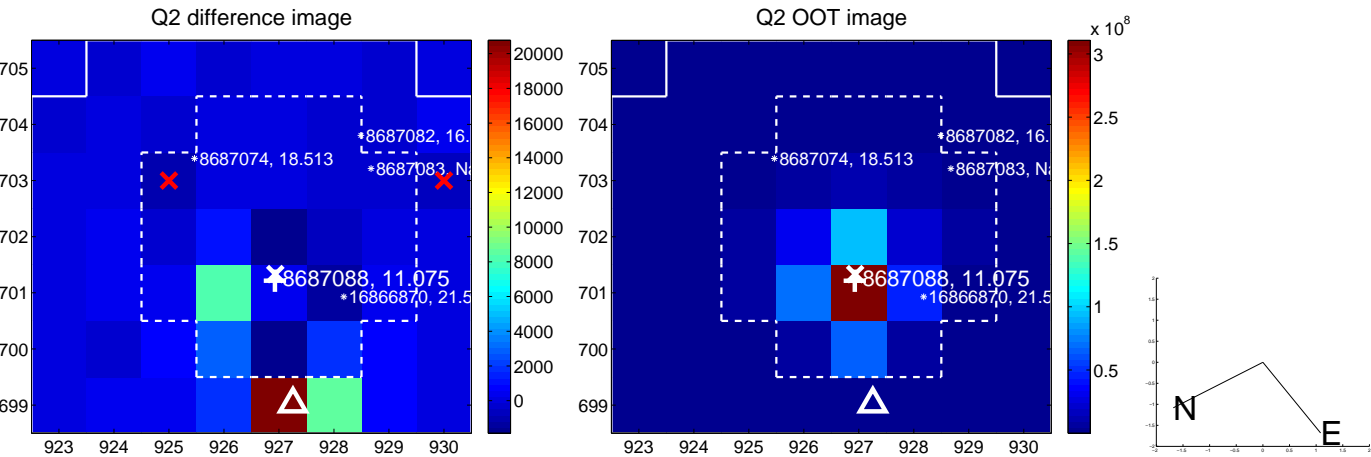
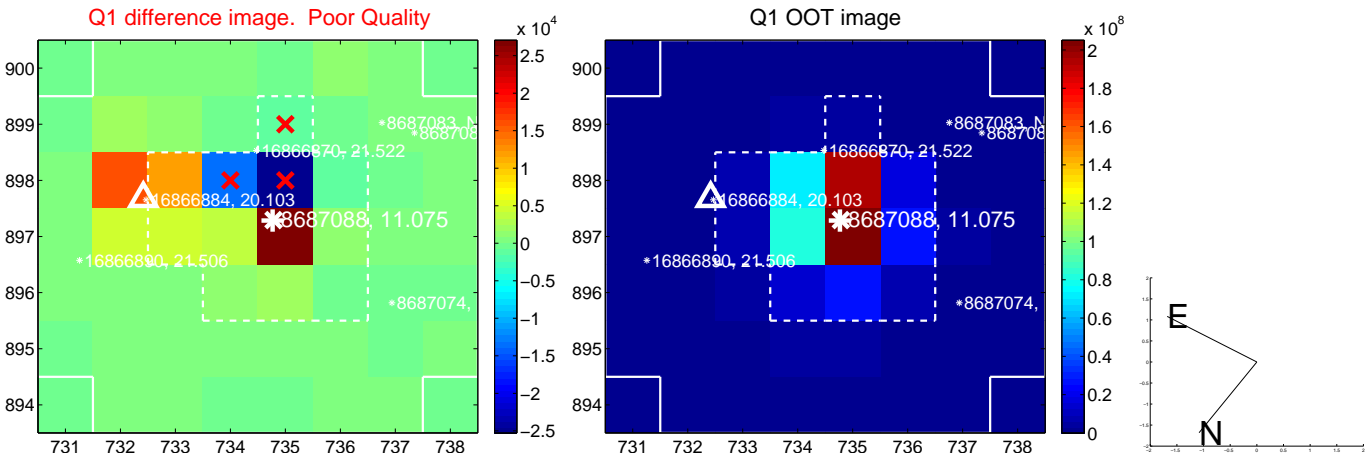
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.378 ± 0.111	84.46	8.586 ± 0.105	3.772 ± 0.078
PRF-fit source offset from KIC position	9.420 ± 0.084	111.66	8.584 ± 0.083	3.880 ± 0.071
photometric centroid source offset	9.14 ± 0.48	19.01	6.03 ± 0.49	6.87 ± 0.47

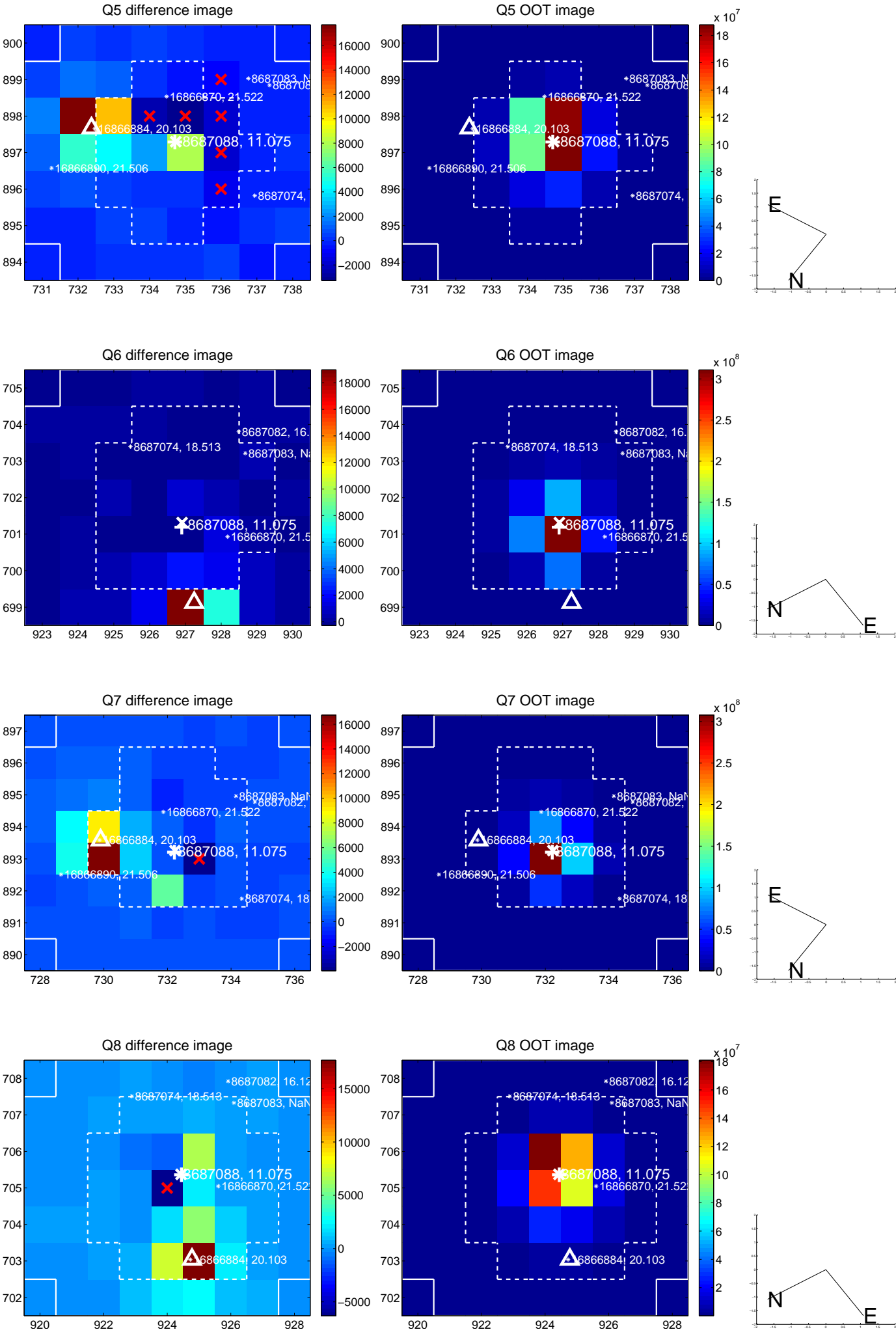


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

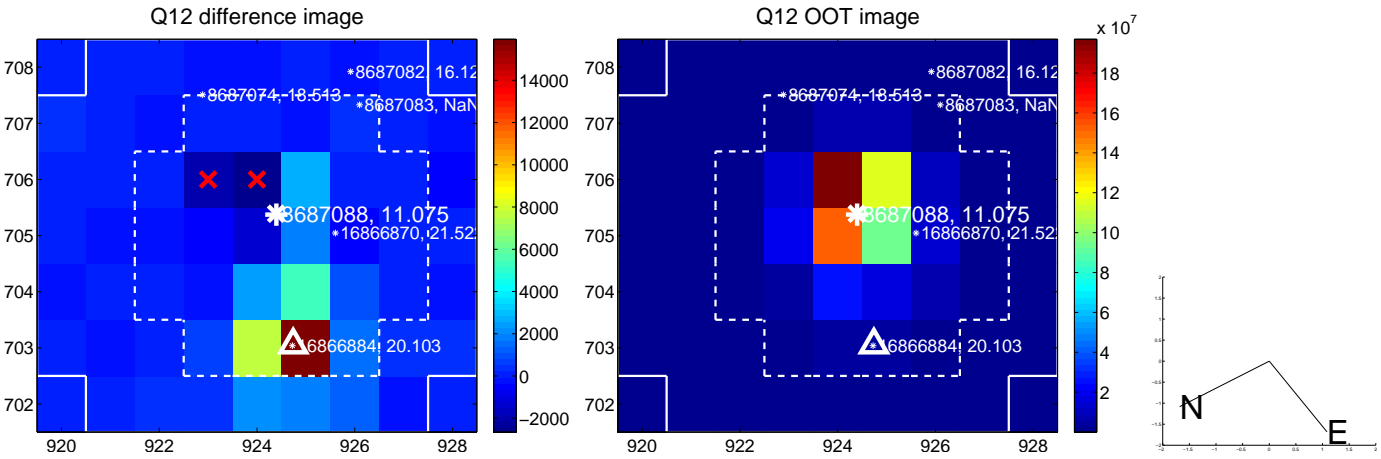
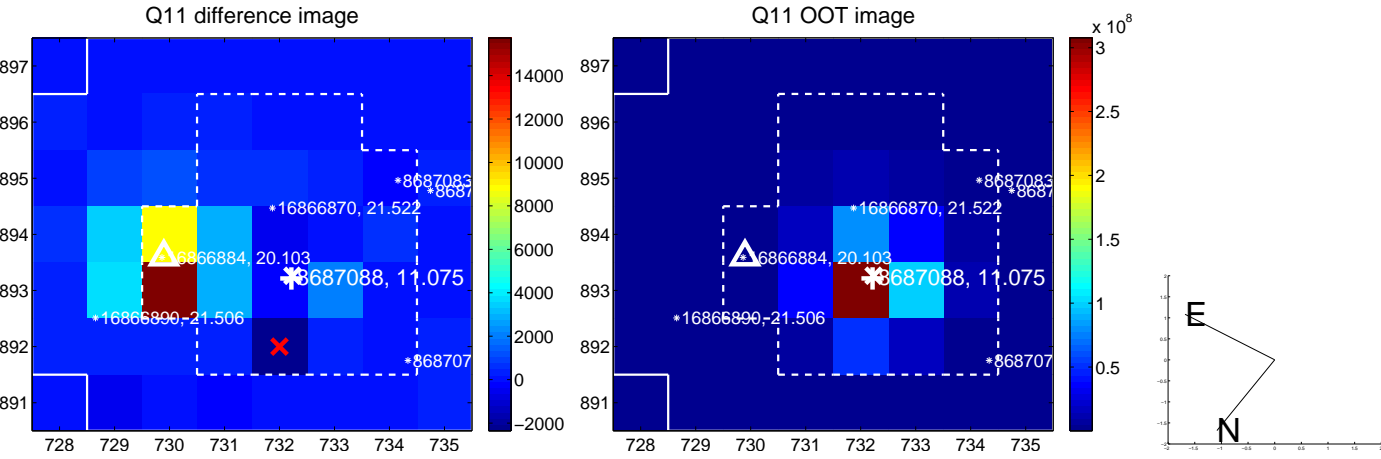
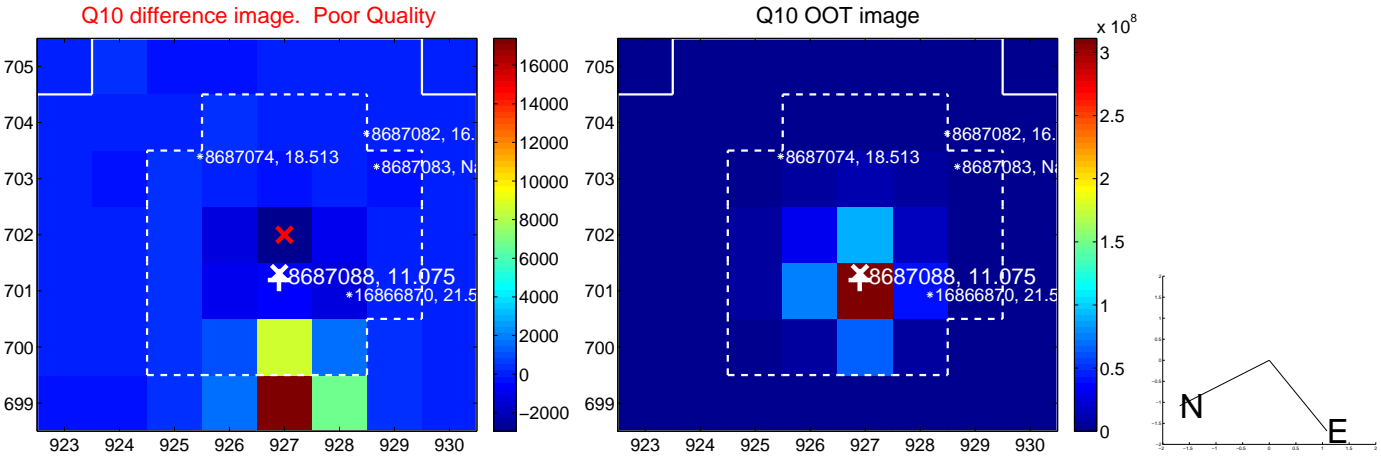
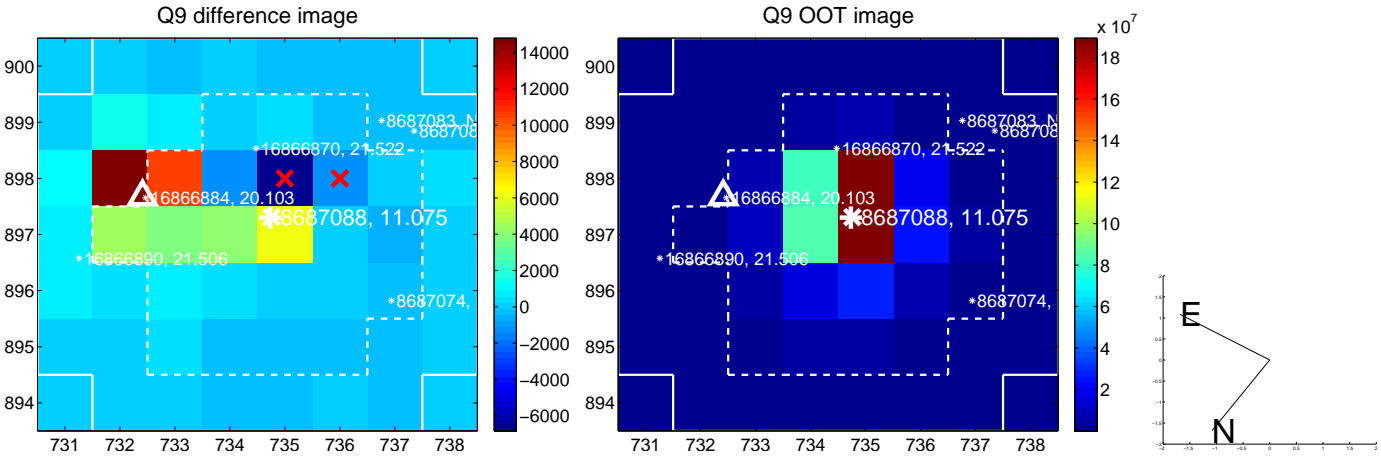
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



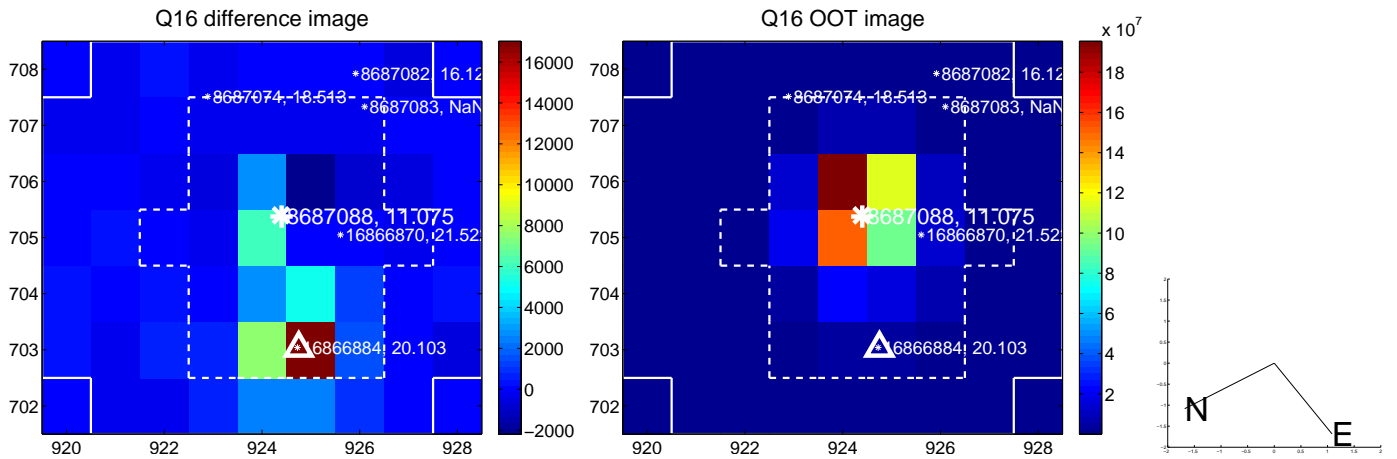
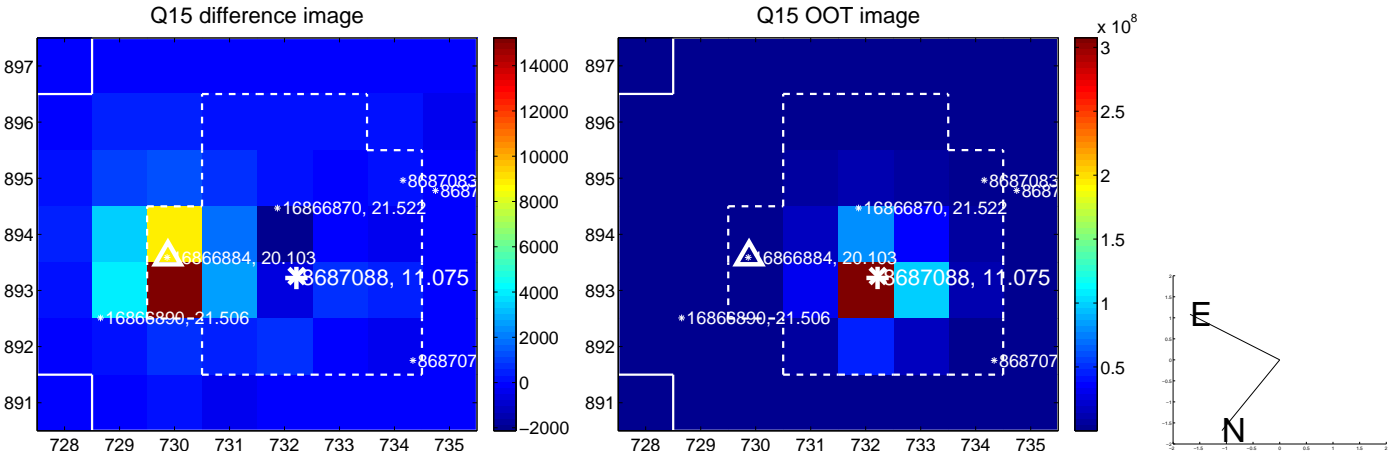
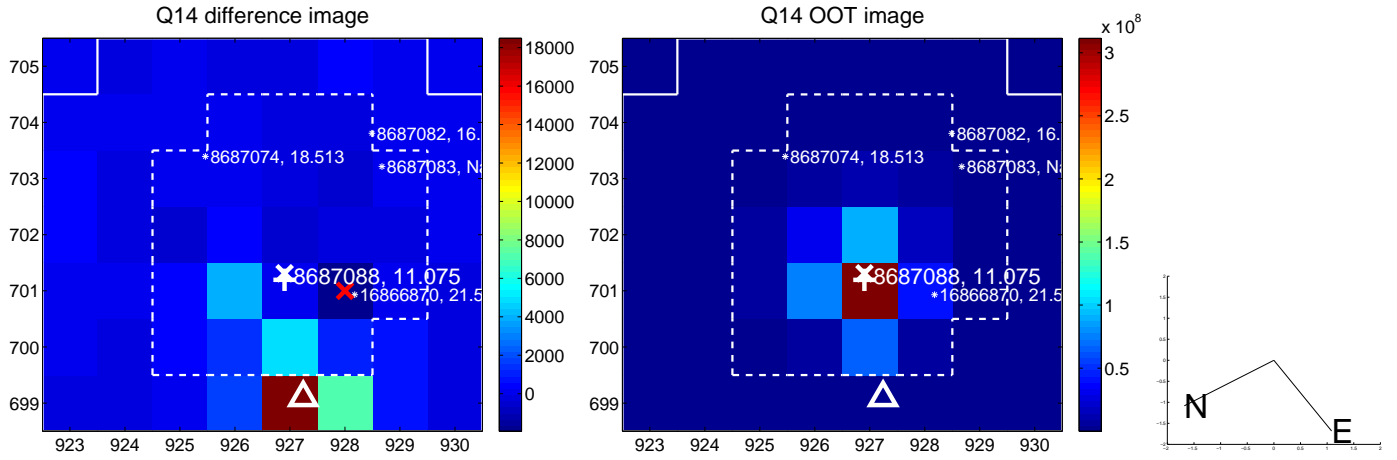
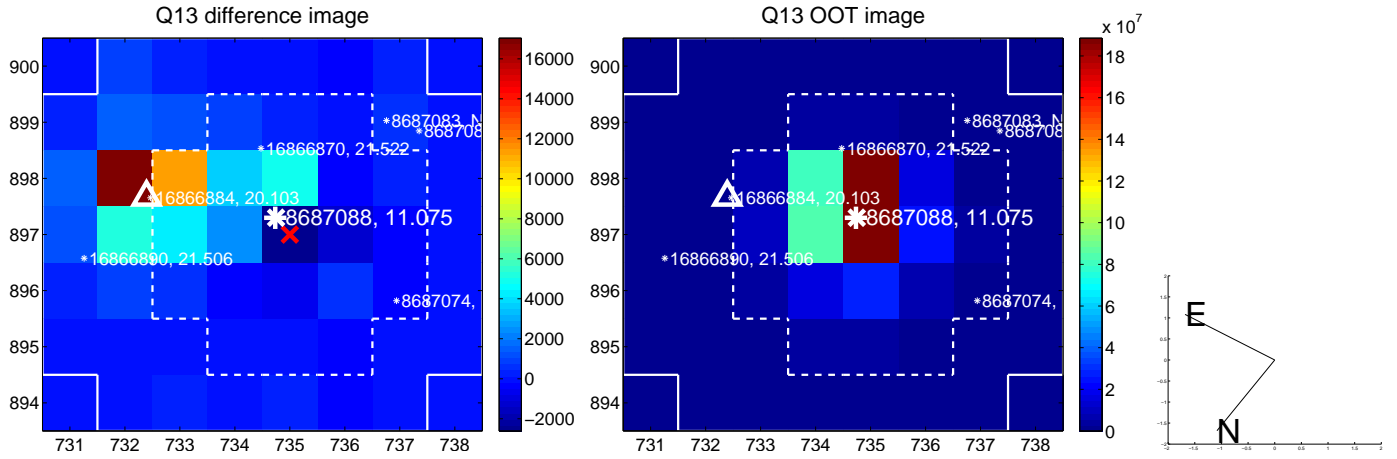
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



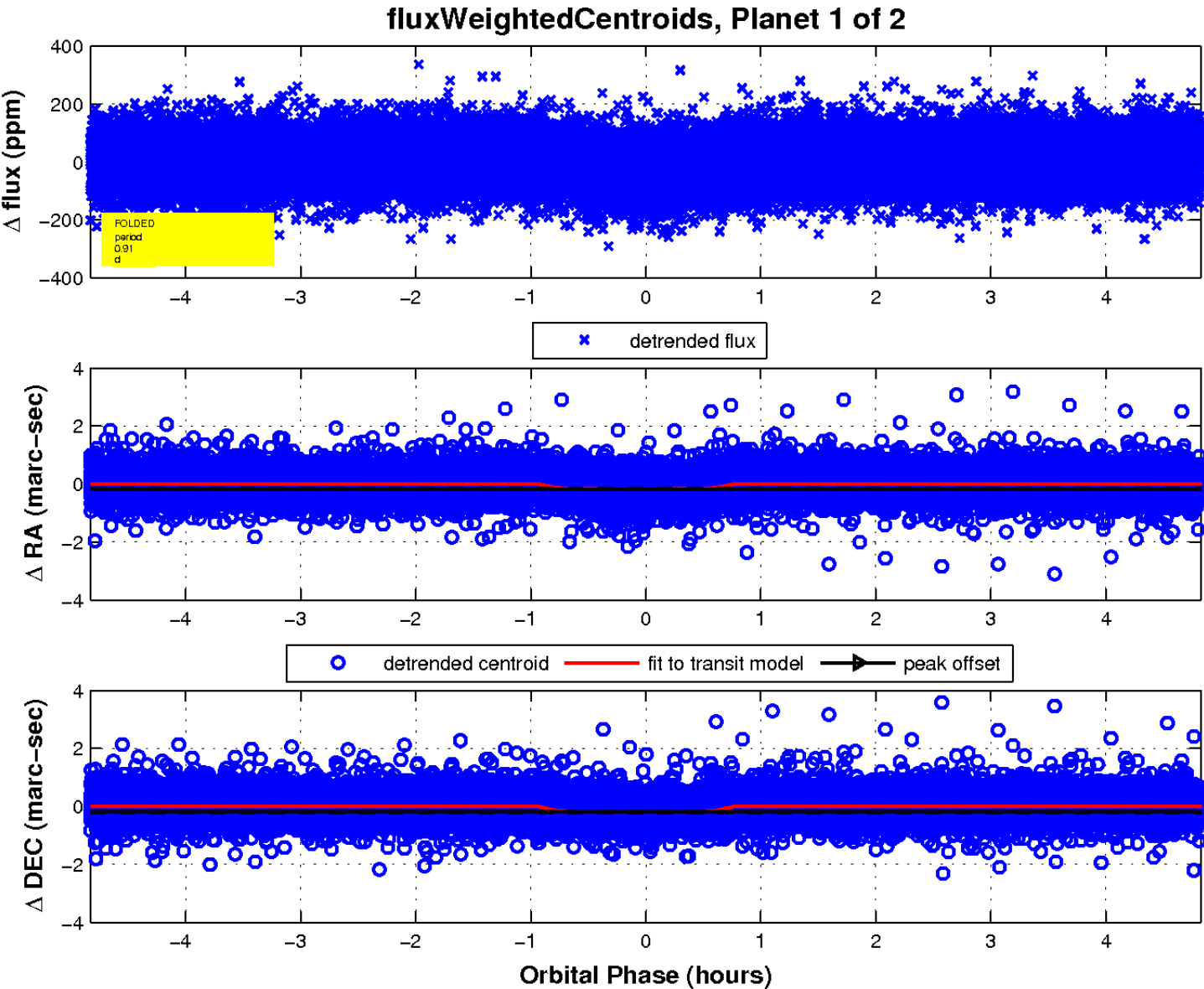
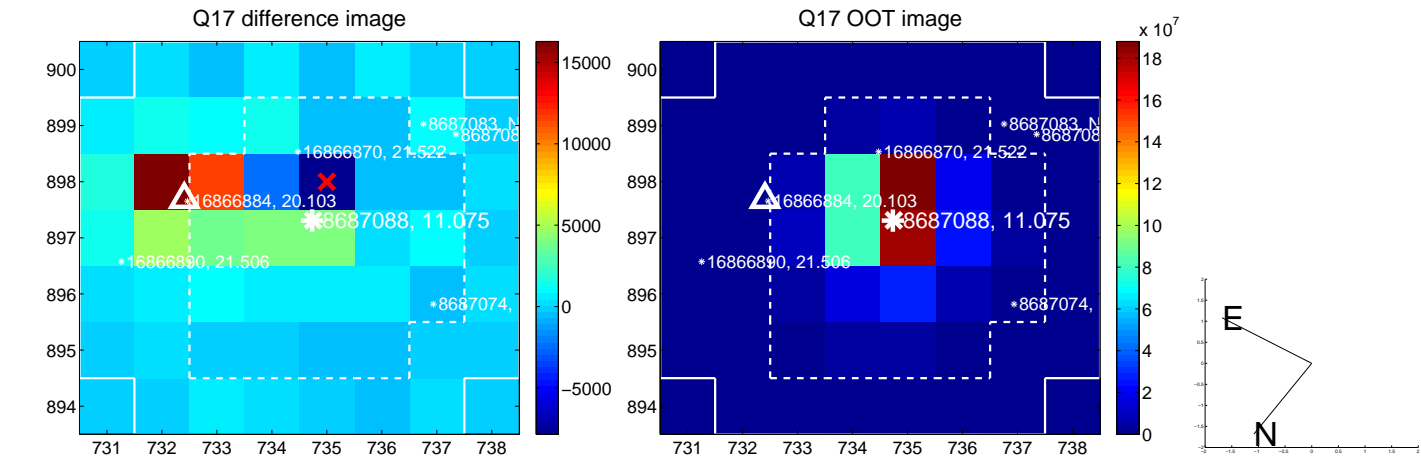
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



This astronomical image shows a field of stars against a dark background. A prominent, bright star is located near the center. A grid of blue lines is overlaid on the image, with green text labels indicating coordinates. The labels include '03.0', '02.0', '01.0', '19:24:00.0', '59.0', '23:58', '50.0', '44:54:00.0', '10.0', '40.0', '30.0', and '50.0'. The image is oriented with the bright star at the center, and the grid lines are aligned with the coordinate axes.

Declination

KIC 008687088

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})
008687088-01	OBS	2749.01	0.905033	132.217381	29.2	1.609	17.8	22.2	1.76	6223	1.12	11276.53
008687088-02	OBS	No	399.338255	339.411612	104.5	13.953	7.6	6.4	1.76	6223	2.02	3.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008687088-01	OBS	FP	0.00	0	0	1	0	CENT_SATURATED—HALO_GHOST
008687088-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—INCONSISTENT_TRANS—CENT_SATURATED

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 008687088-02

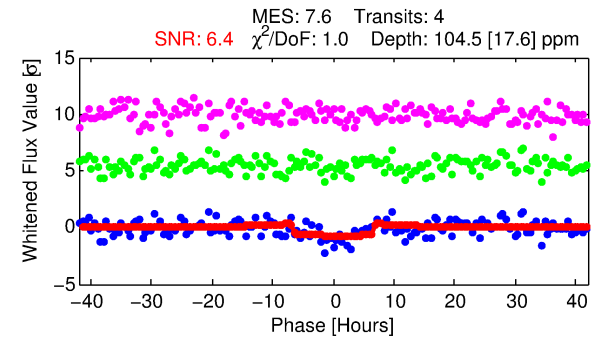
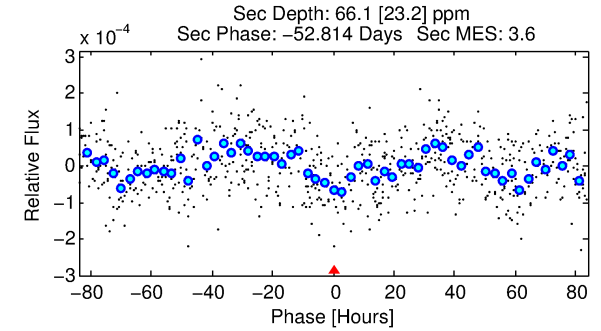
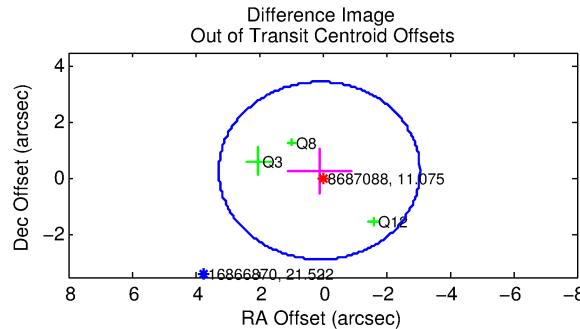
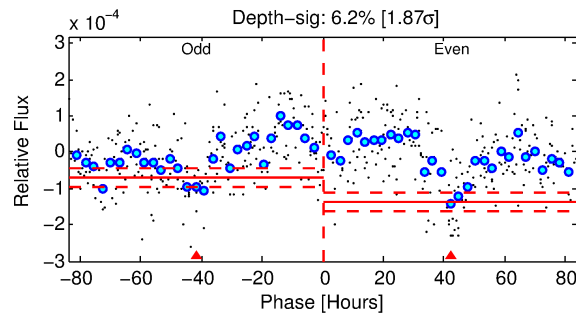
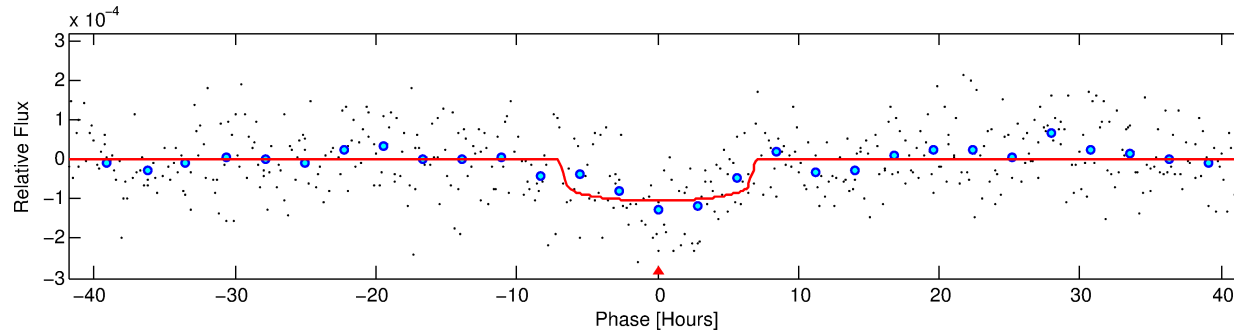
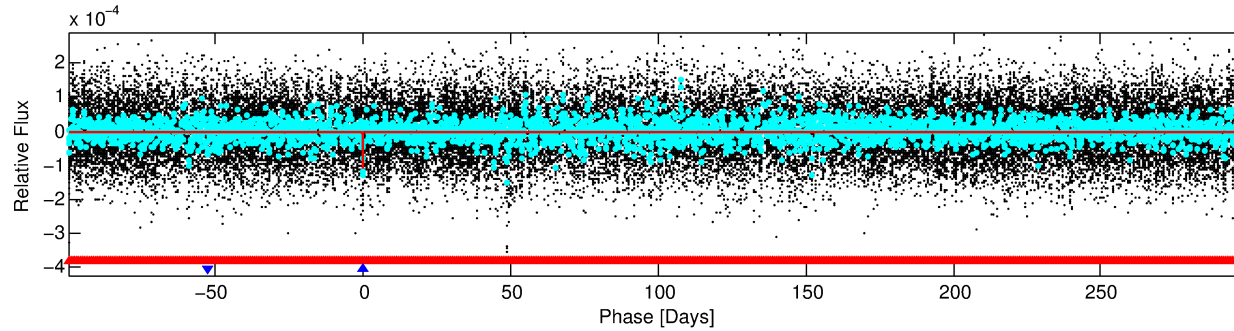
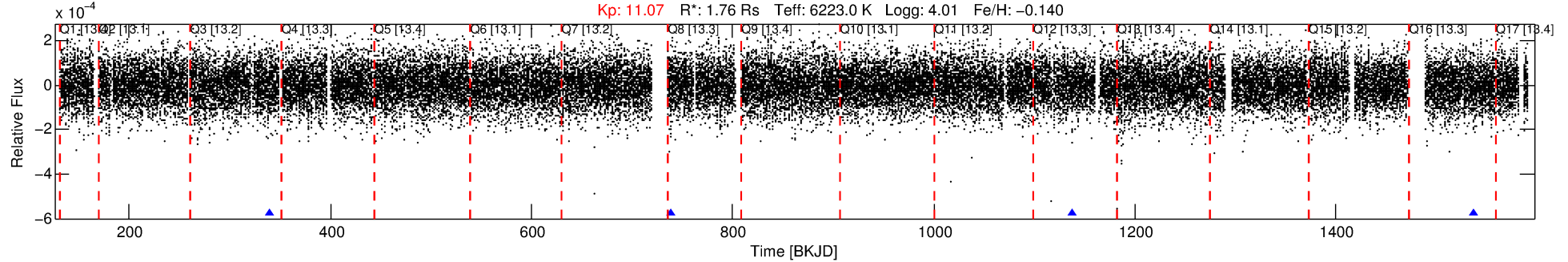
No Significant Match Found

DV One-Page Summary

KIC: 8687088 Candidate: 2 of 2 Period: 399.338 d

KOI: K02749 Corr: No Ephemeris Match

Kp: 11.07 R*: 1.76 Rs Teff: 6223.0 K Logg: 4.01 Fe/H: -0.140



DV Fit Results:

Period = 399.33825 [0.01094] d
Epoch = 339.4116 [0.0160] BKJD
Rp/R* = 0.0105 [0.0024]
a/R* = 126.66 [140.00]
b = 0.83 [0.42]
Seff = 3.36 [2.06]
Teq = 345 [53] K
Rp = 2.02 [0.90] Re
a = 1.1154 [0.4133] AU
Ag = 11104.83 [9234.15] [1.20σ]
Teff = 5478 [824] K [6.22σ]

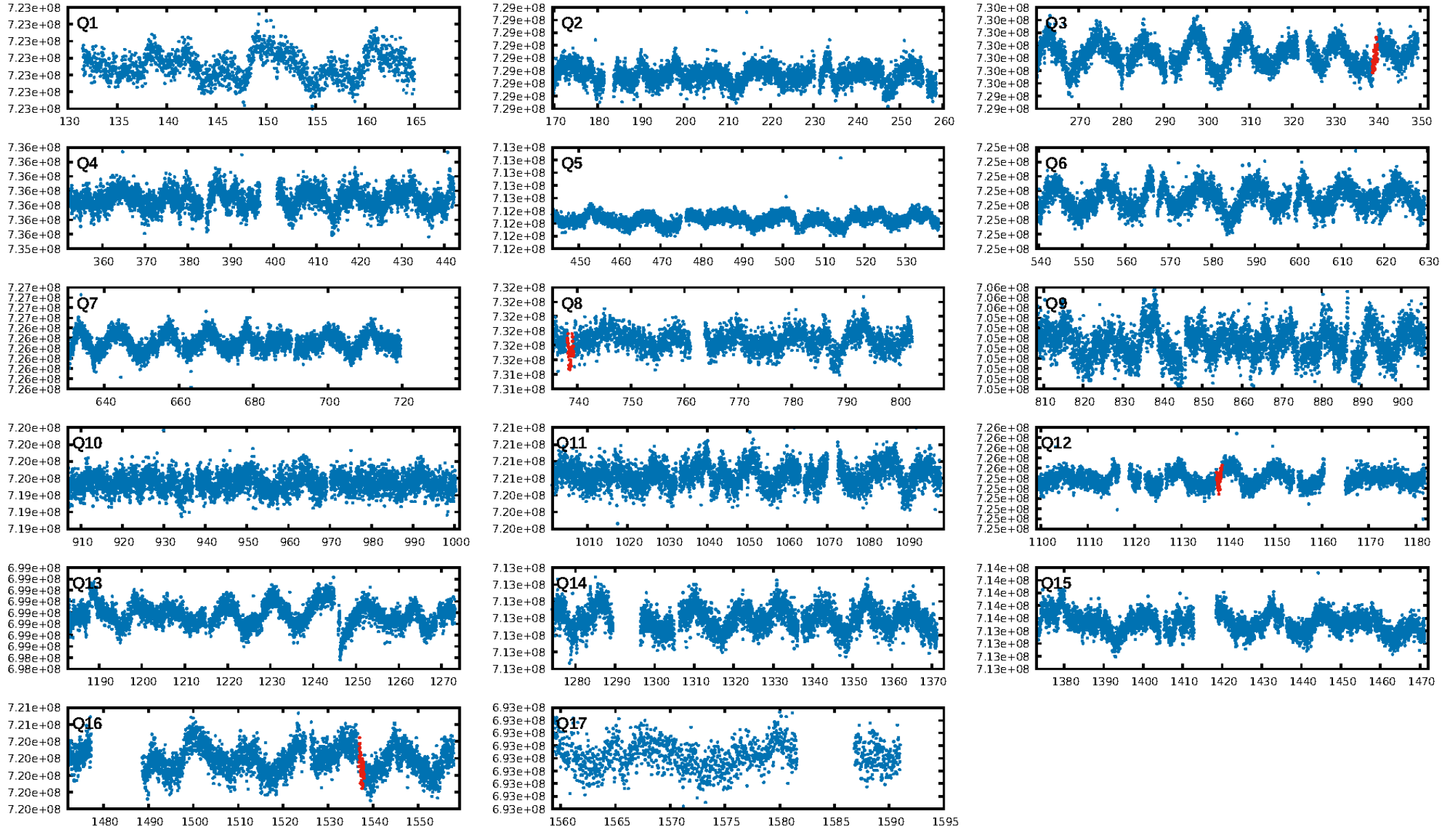
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [680.83σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 14.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.40e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -5.436
Centroid-sig: 0.2%
Centroid-so: 2.321 arcsec [1.91σ]
OotOffset-rm: 0.301 arcsec [0.29σ]
KicOffset-rm: 0.318 arcsec [0.31σ]
OotOffset-st: 0/1/2/0 [3]
KicOffset-st: 0/1/2/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.00 [0/4]

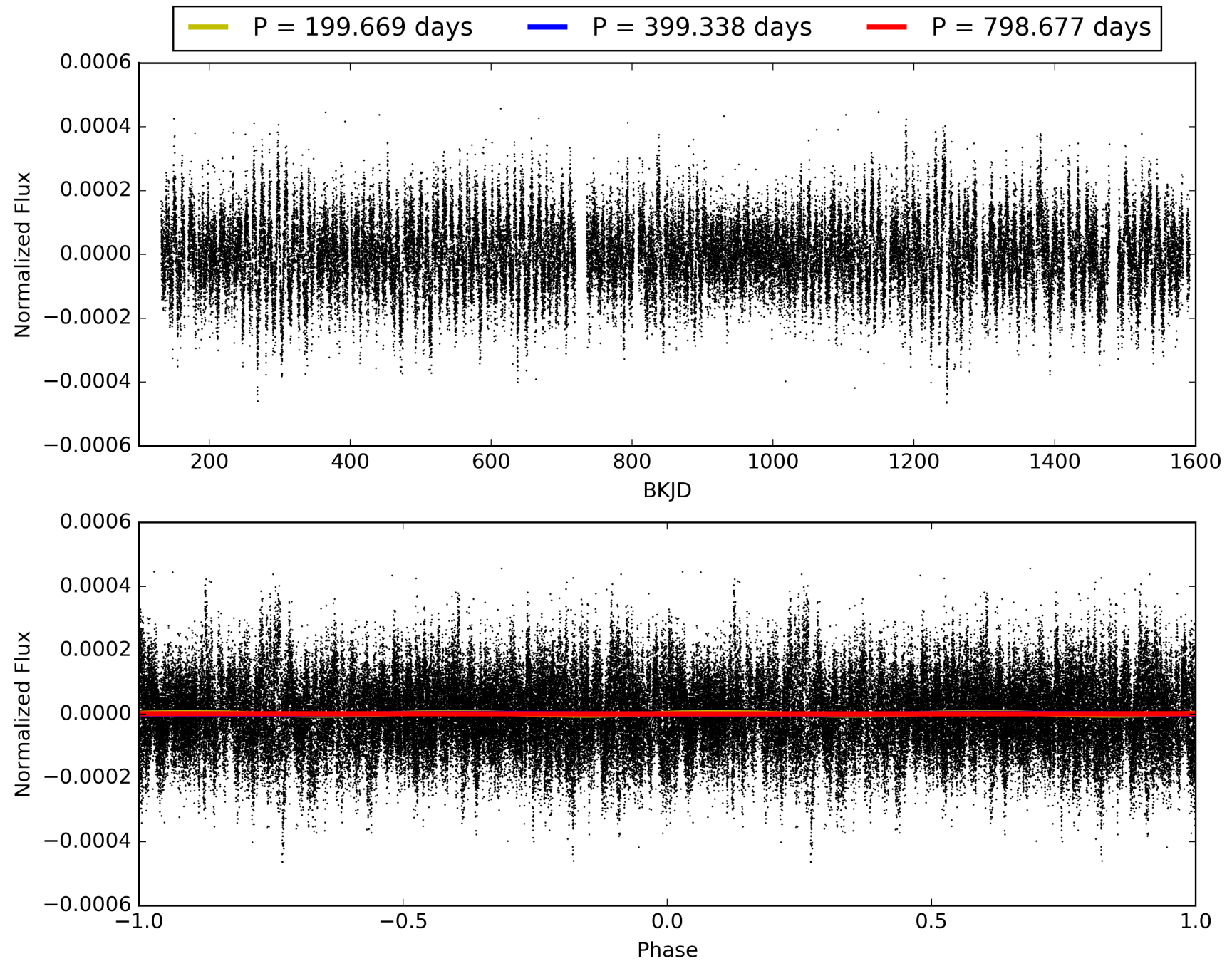
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:32:52 Z

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

TCE 008687088-02, PDC Light Curves

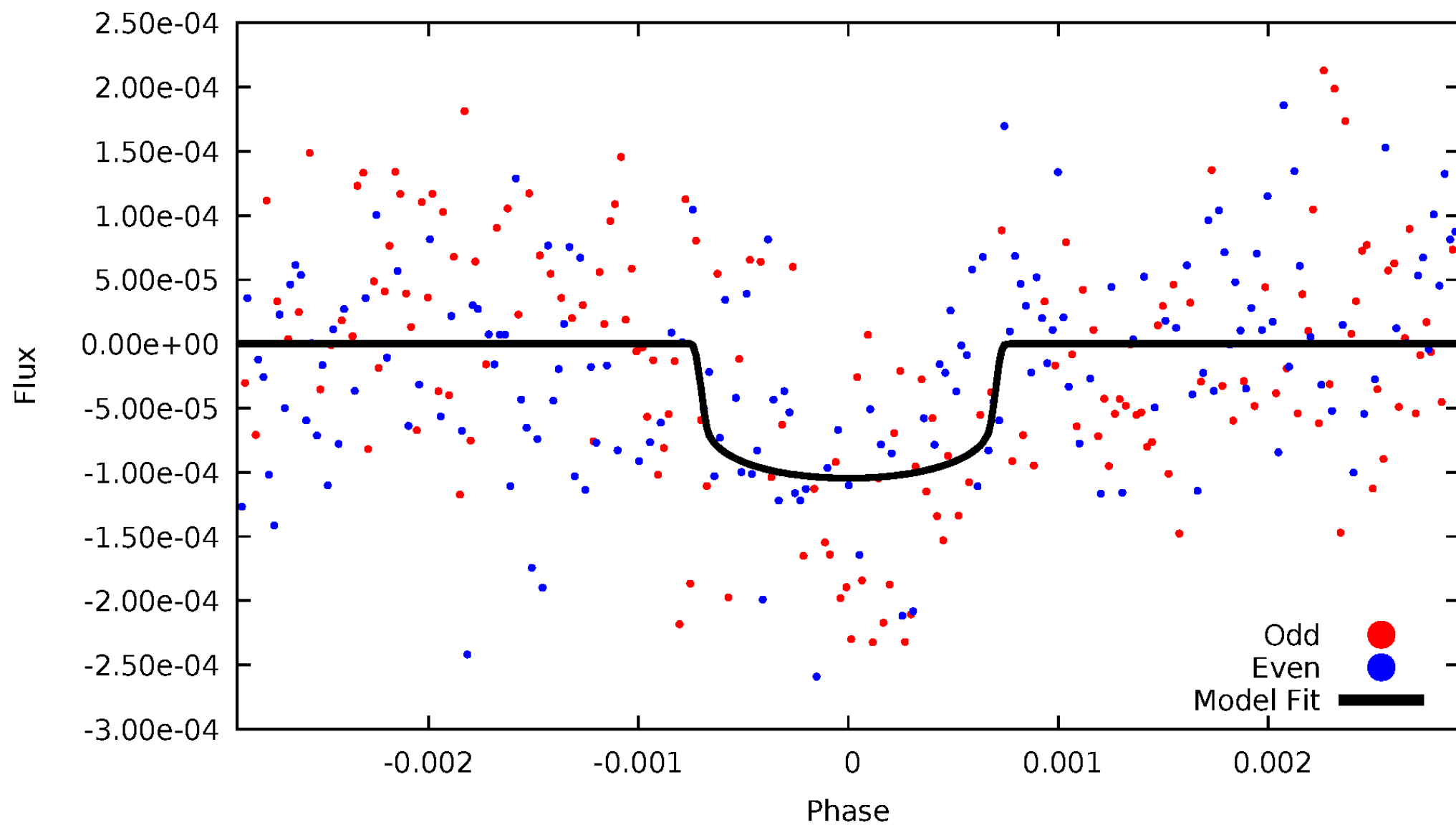


TCE 008687088-02



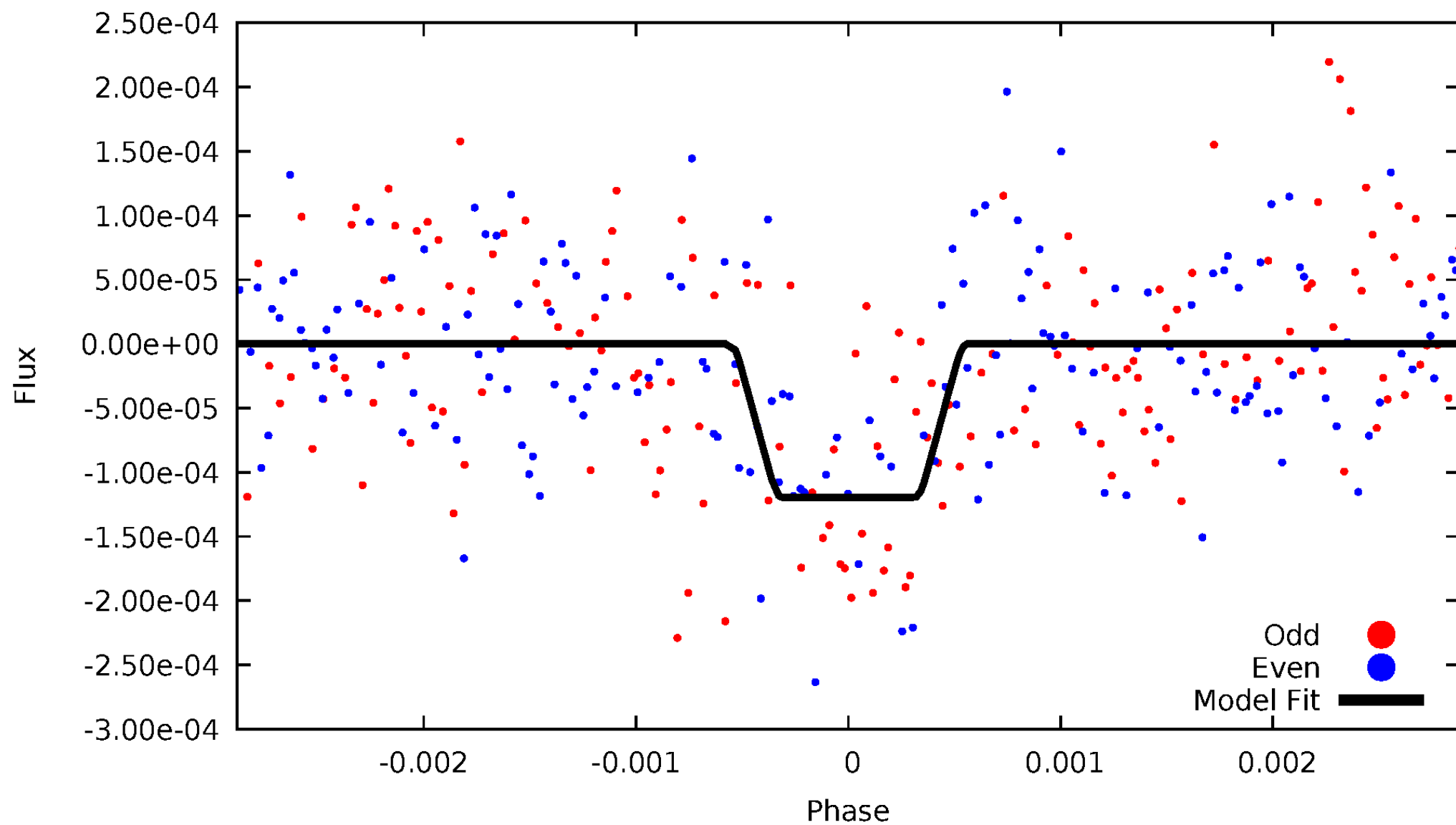
DV Odd/Even

TCE 008687088-02



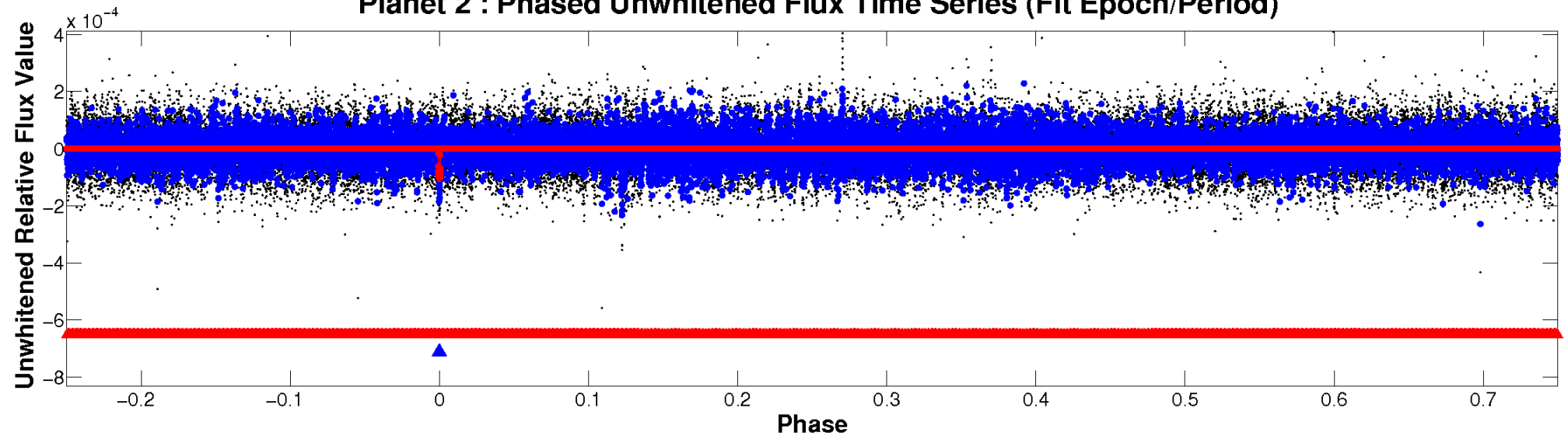
ALT Odd/Even

TCE 008687088-02

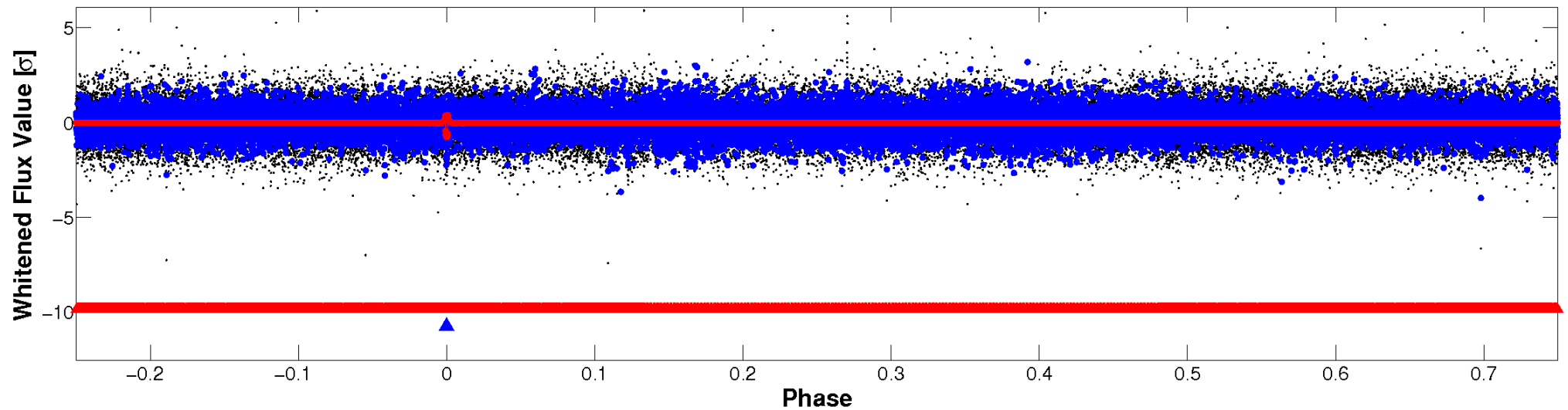


Non-Whitened Vs. Whitened Light Curve

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

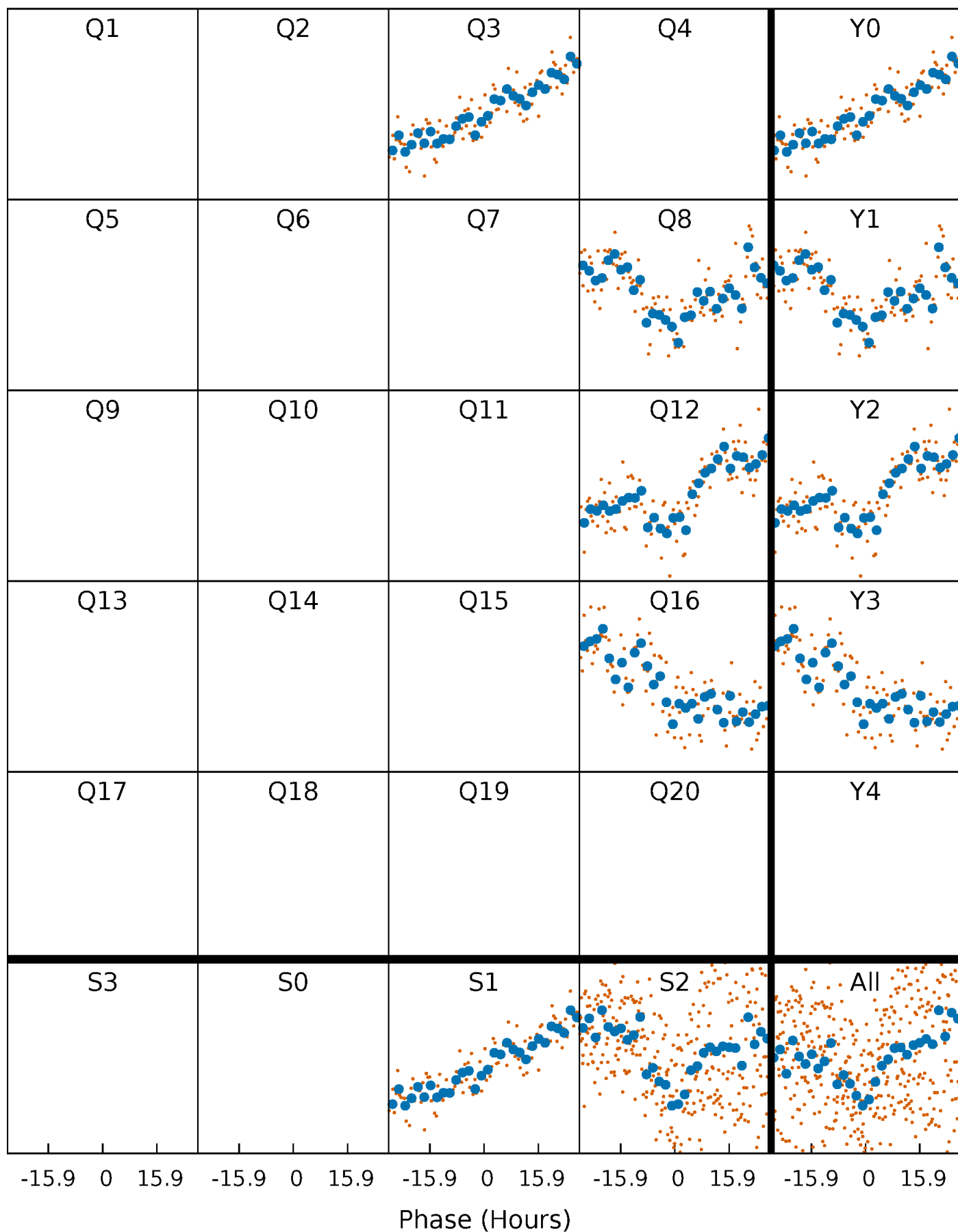


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



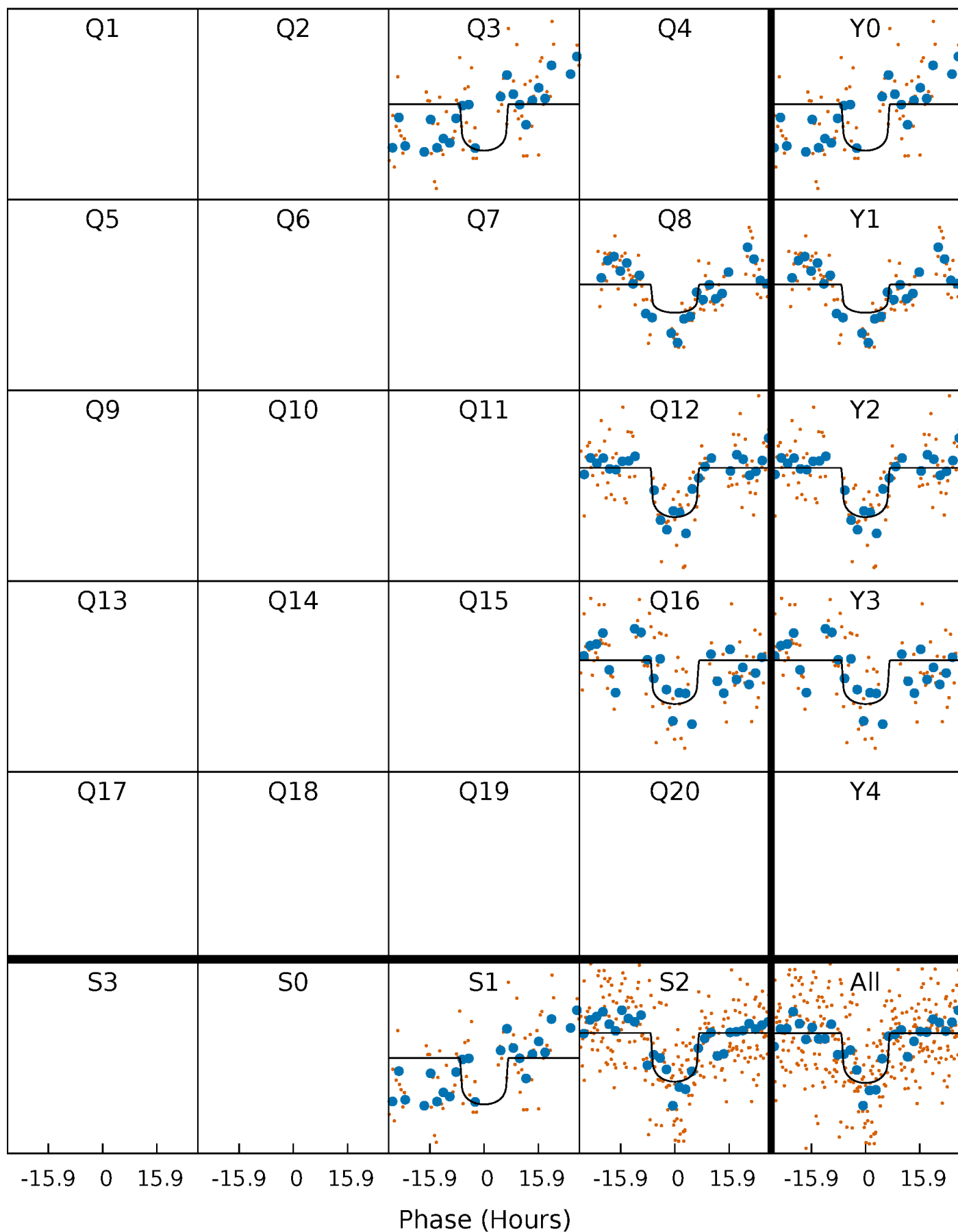
PDC Quarter-Phased Transit Curves

TCE 008687088-02 P=399.338255 Days $T_0=339.411612$ (BKJD)



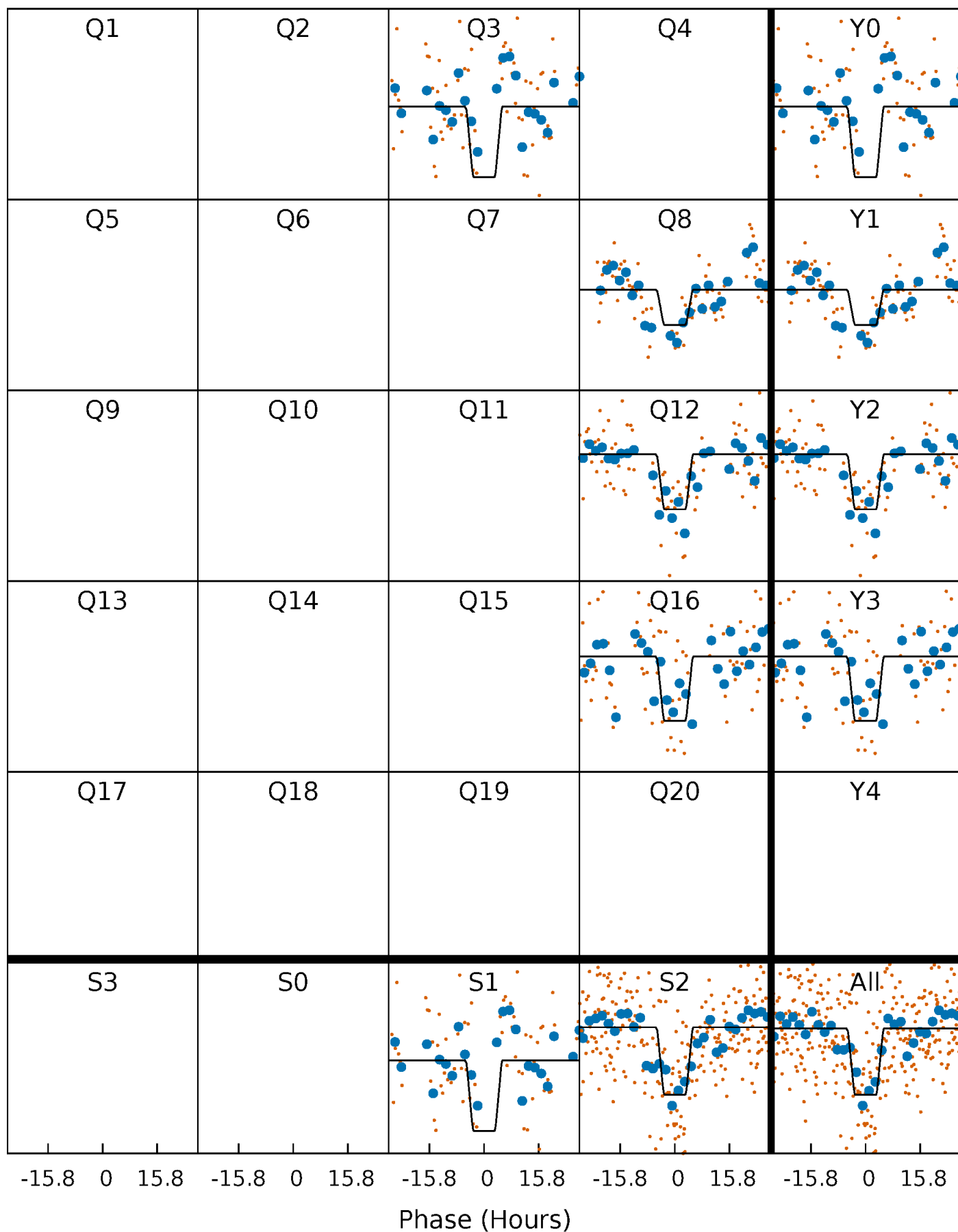
DV Quarter-Phased Transit Curves

TCE 008687088-02 $P=399.338255$ Days $T_0=339.411612$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

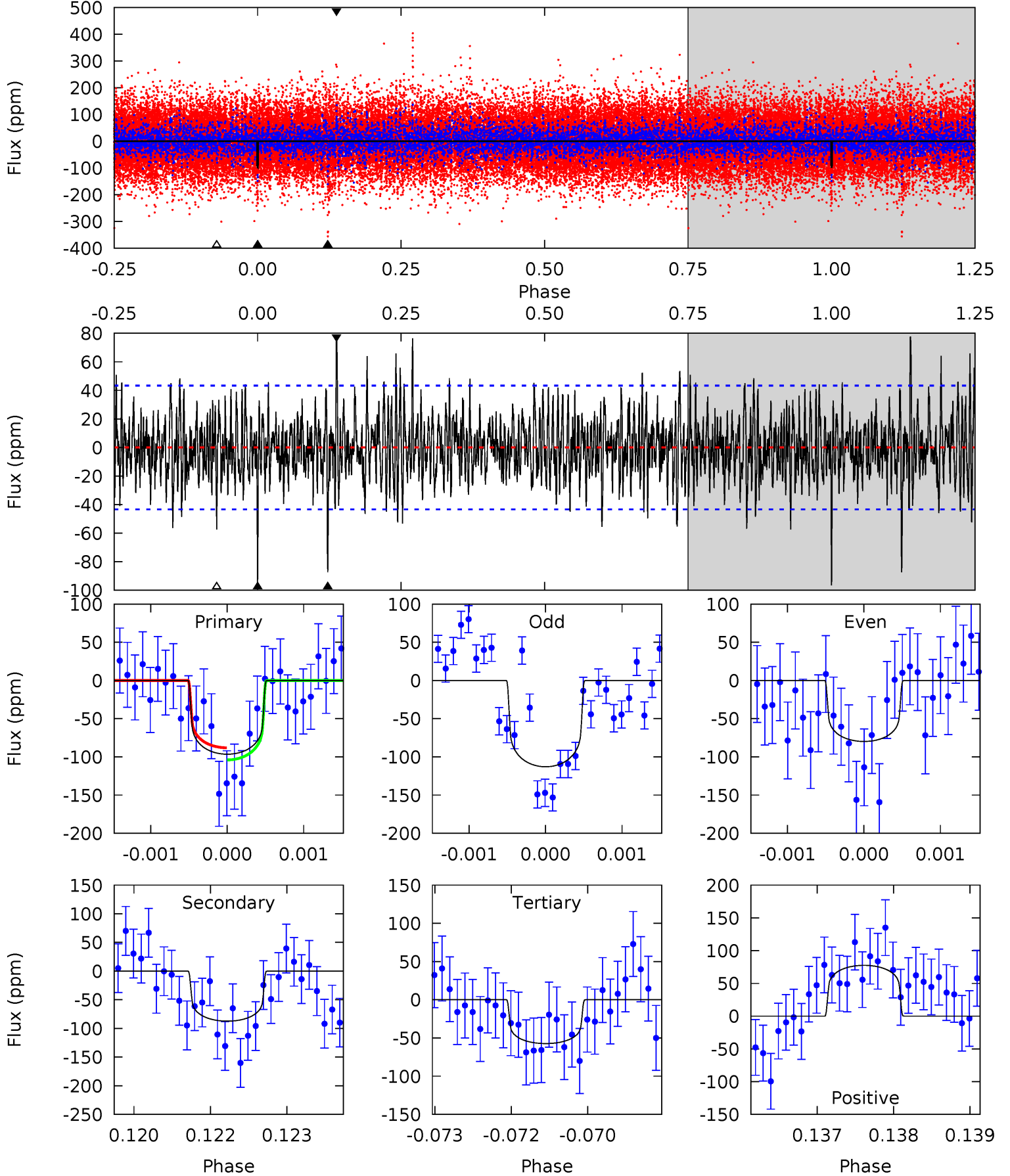
TCE 008687088-02 P=399.339874 Days $T_0=339.410095$ (BKJD)



DV Model-Shift Uniqueness Test

008687088-02, P = 399.338255 Days, E = 339.411612 Days

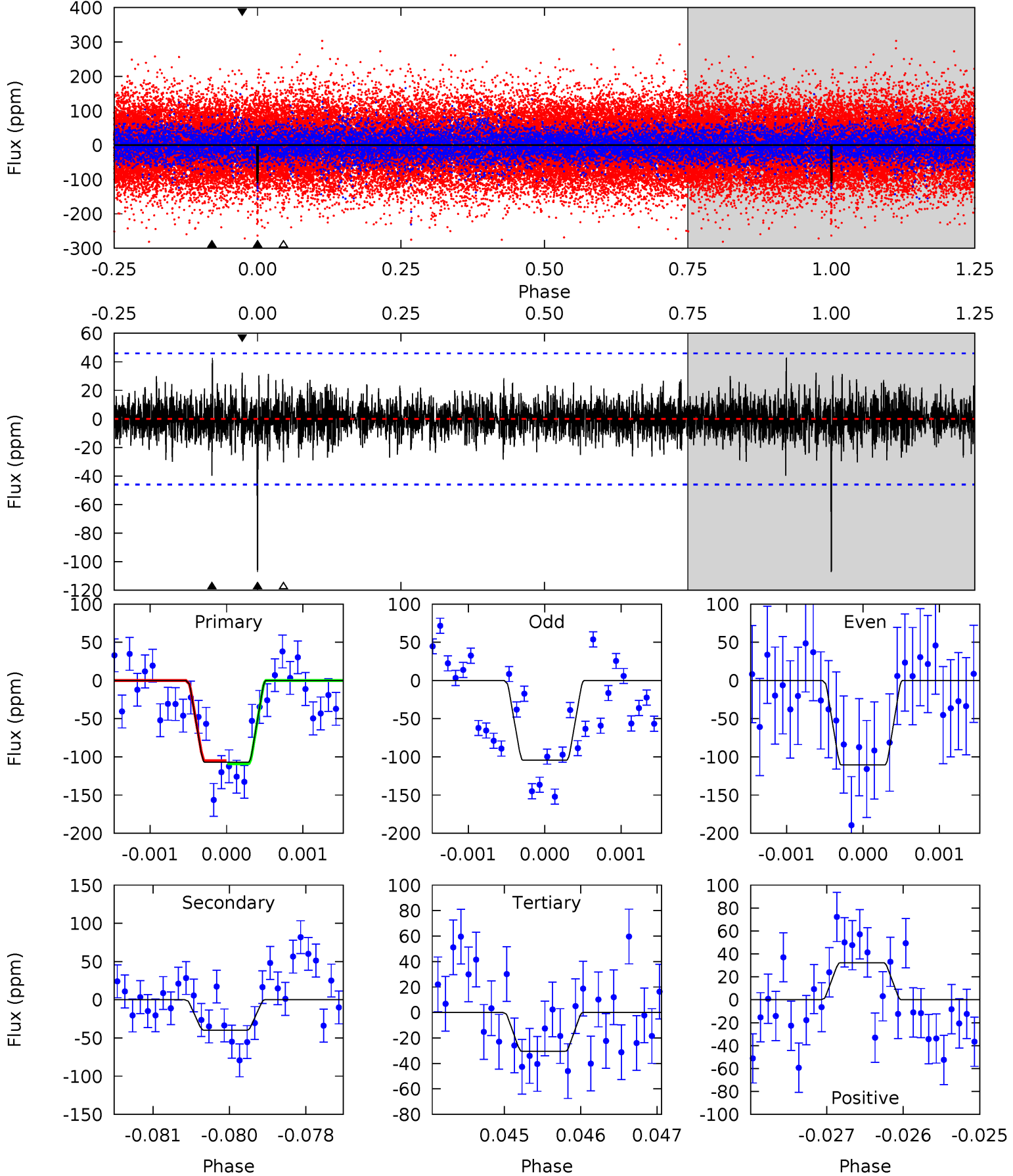
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	10.8	7.12	9.63	5.38	3.18	2.31	4.86	2.36	3.72	1.22	2.05	0.99	0.45	0.98



Alt Model-Shift Uniqueness Test

008687088-02, $P = 399.339874$ Days, $E = 339.410095$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	4.70	3.60	3.82	5.44	3.27	1.06	9.08	8.86	1.10	0.88	0.37	0.93	0.29	0.23



Stellar Parameters For KIC 008687088

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6223^{+199}_{-243}	$4.010^{+0.350}_{-0.150}$	$-0.140^{+0.250}_{-0.300}$	$1.763^{+0.450}_{-0.675}$	$1.159^{+0.189}_{-0.208}$	$0.298^{+0.750}_{-0.123}$
	+3%/-4%	+9%/-4%	+179%/-214%	+26%/-38%	+16%/-18%	+252%/-41%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008687088-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-87 ± 8	$1.93^{+0.63}_{-0.58}$	473^{+42}_{-49}	5856^{+868}_{-618}	16144^{+16457}_{-7021}
Alt.	-40 ± 8	$2.02^{+0.59}_{-0.57}$	474^{+38}_{-47}	4791^{+645}_{-425}	6723^{+6294}_{-2966}

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

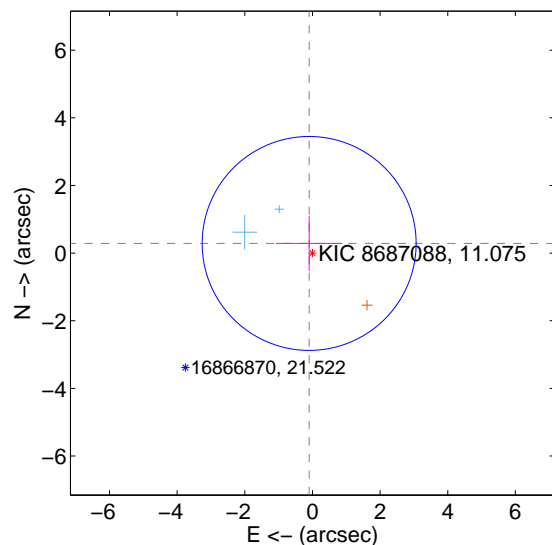
Supplemental centroid analysis for 008687088-02. **Kepler magnitude: 11.07.** Transit SNR 6.40

There are 2 quarters with good PRF difference image offsets

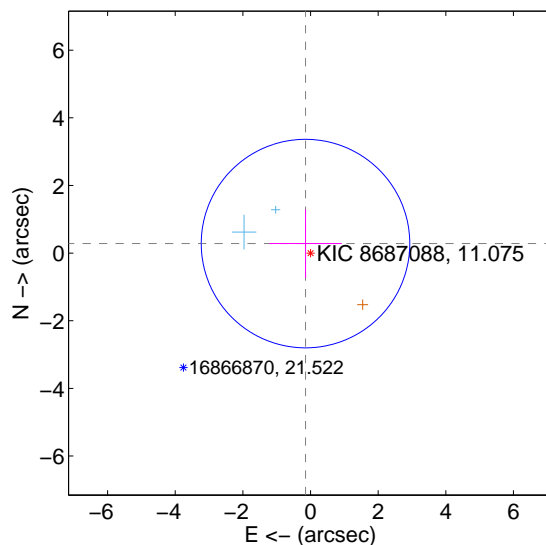
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.301 ± 1.054	0.29	0.097 ± 0.980	0.285 ± 0.814
PRF-fit source offset from KIC position	0.318 ± 1.027	0.31	0.148 ± 1.069	0.281 ± 1.015
photometric centroid source offset	2.32 ± 1.21	1.91	1.03 ± 1.45	-2.08 ± 1.15

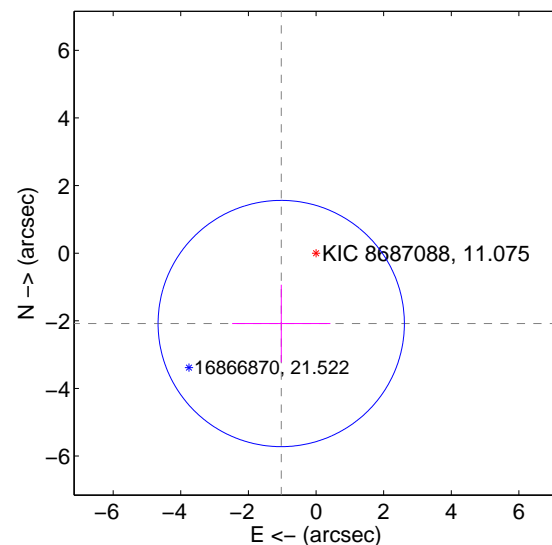
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

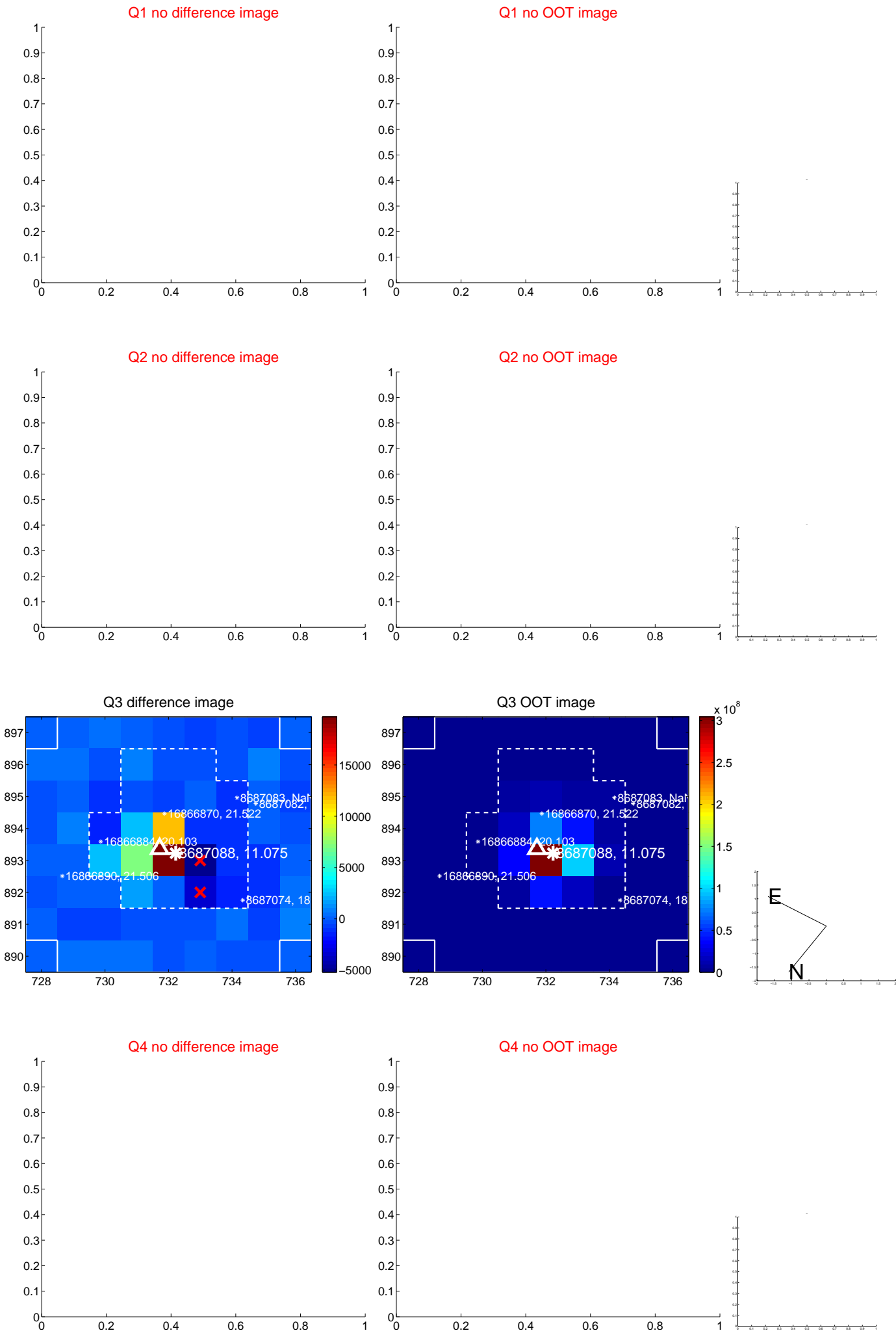


offset from photometric centroids

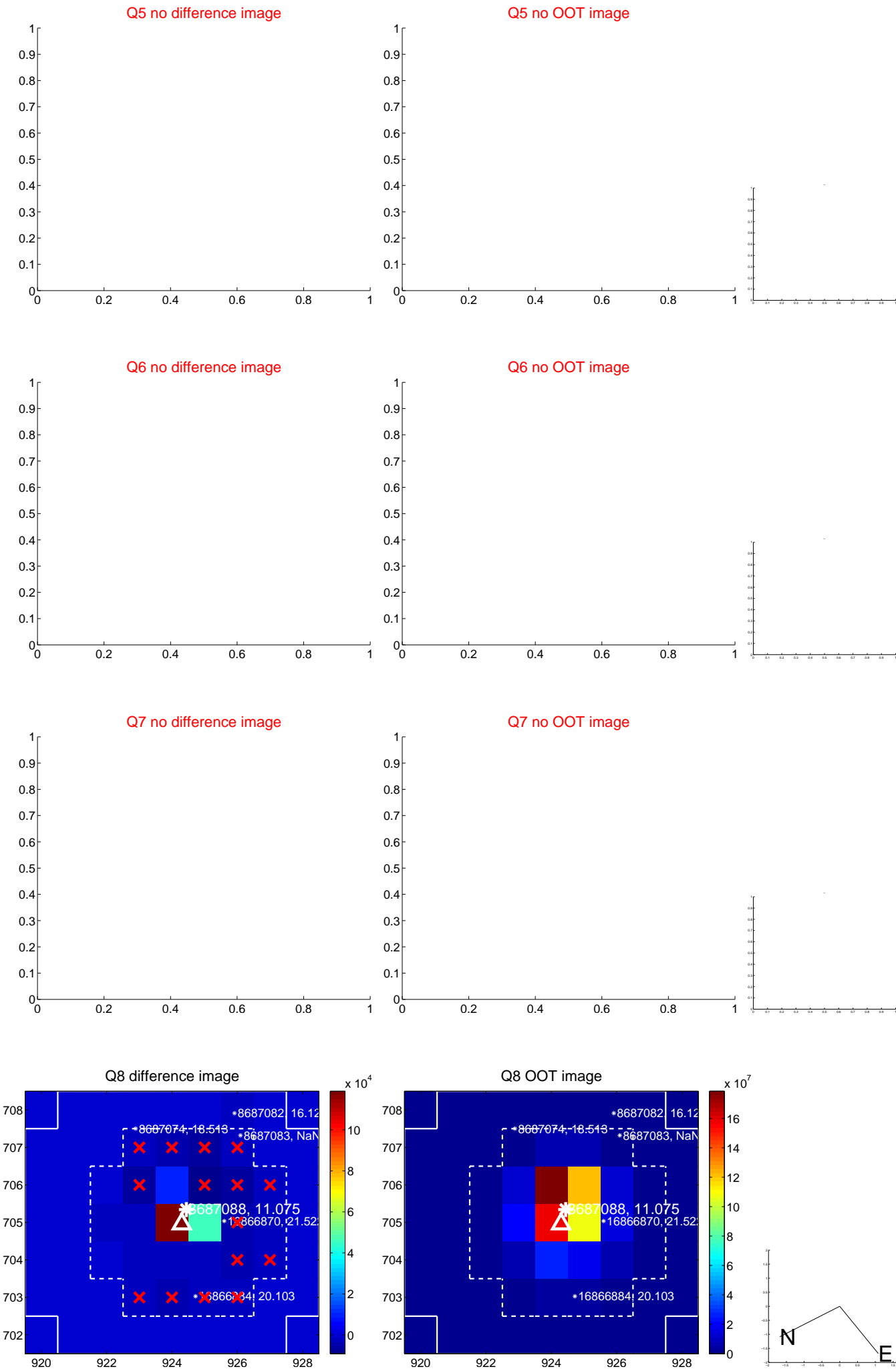


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

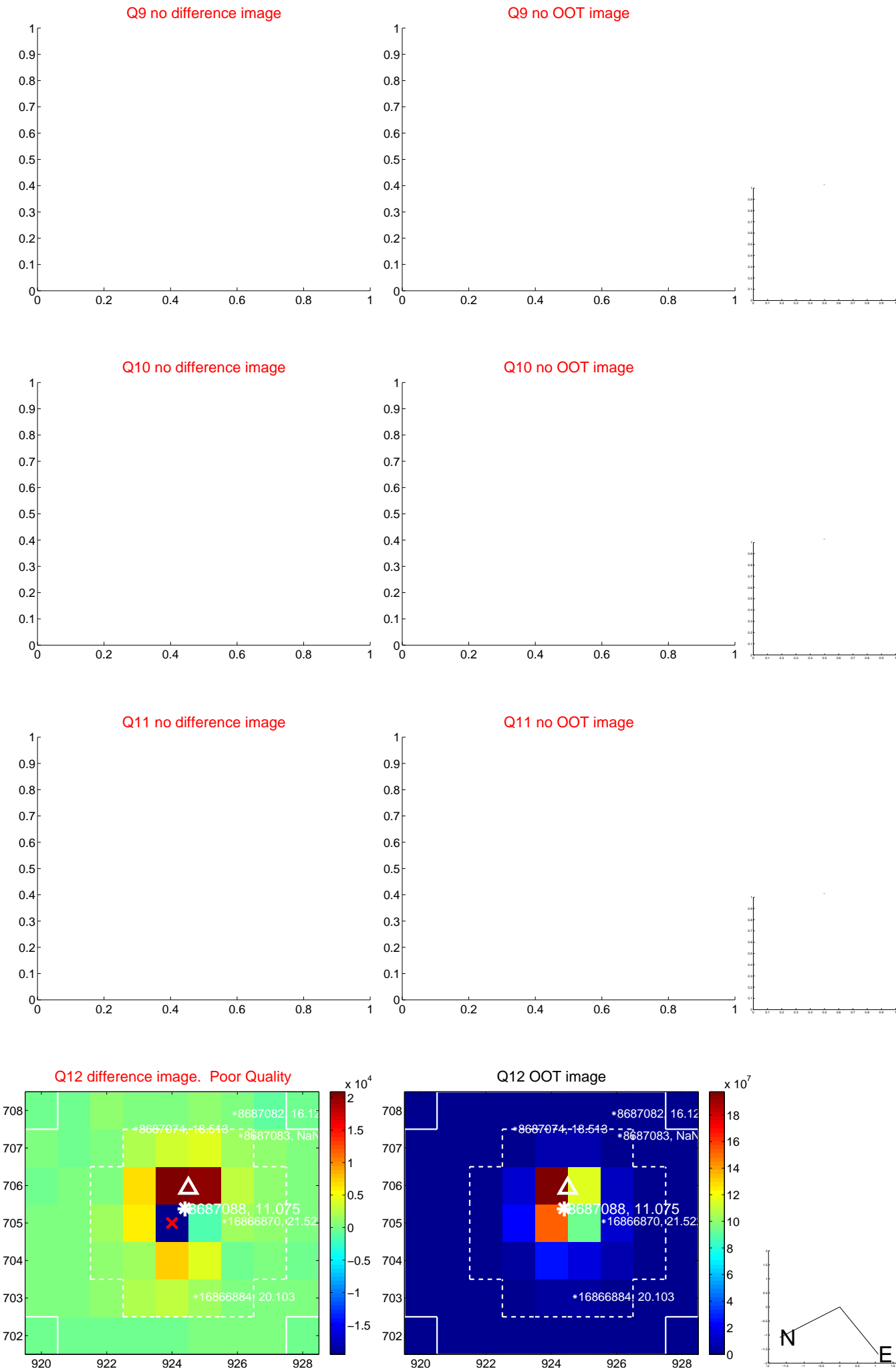
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



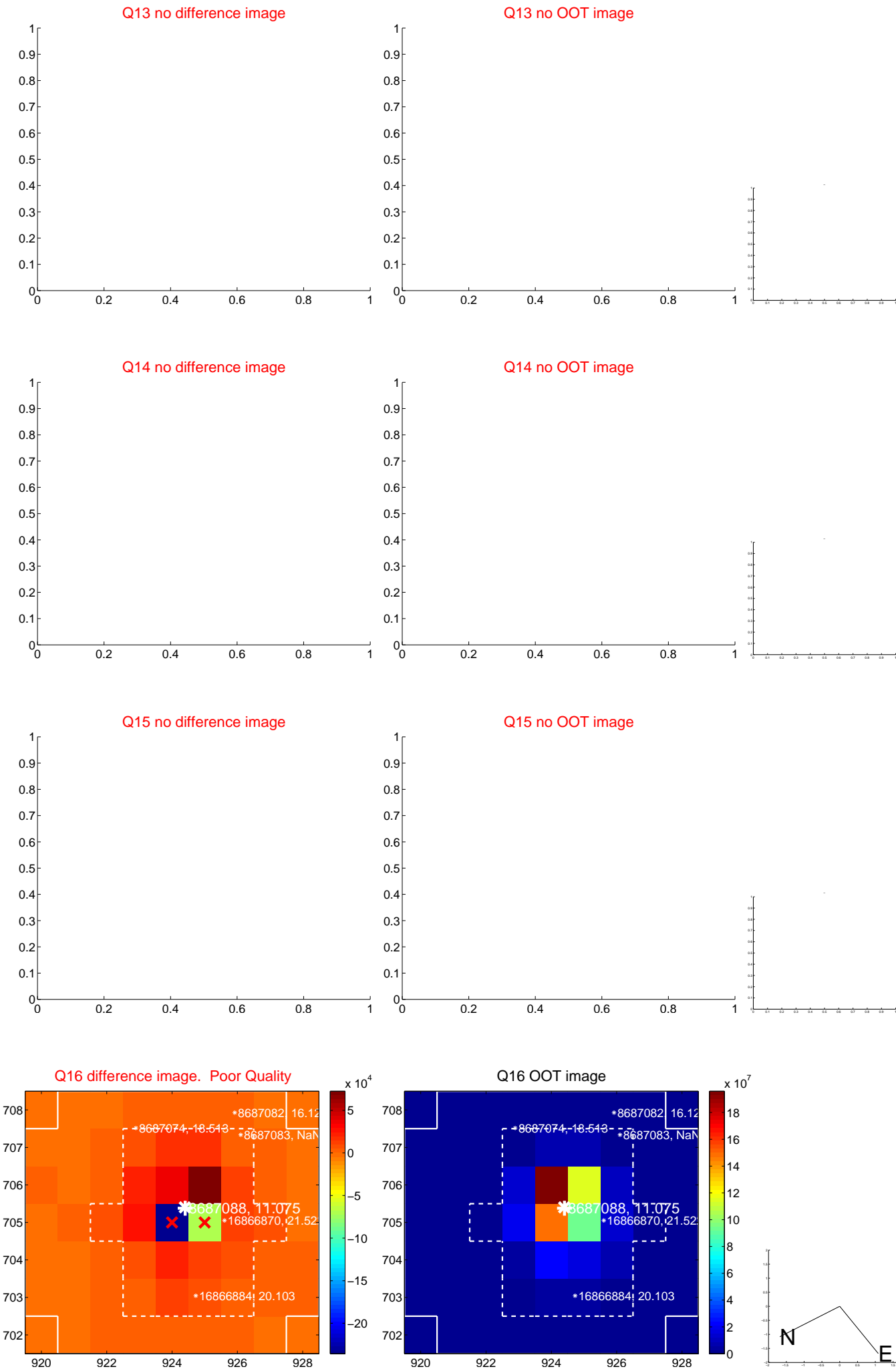
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



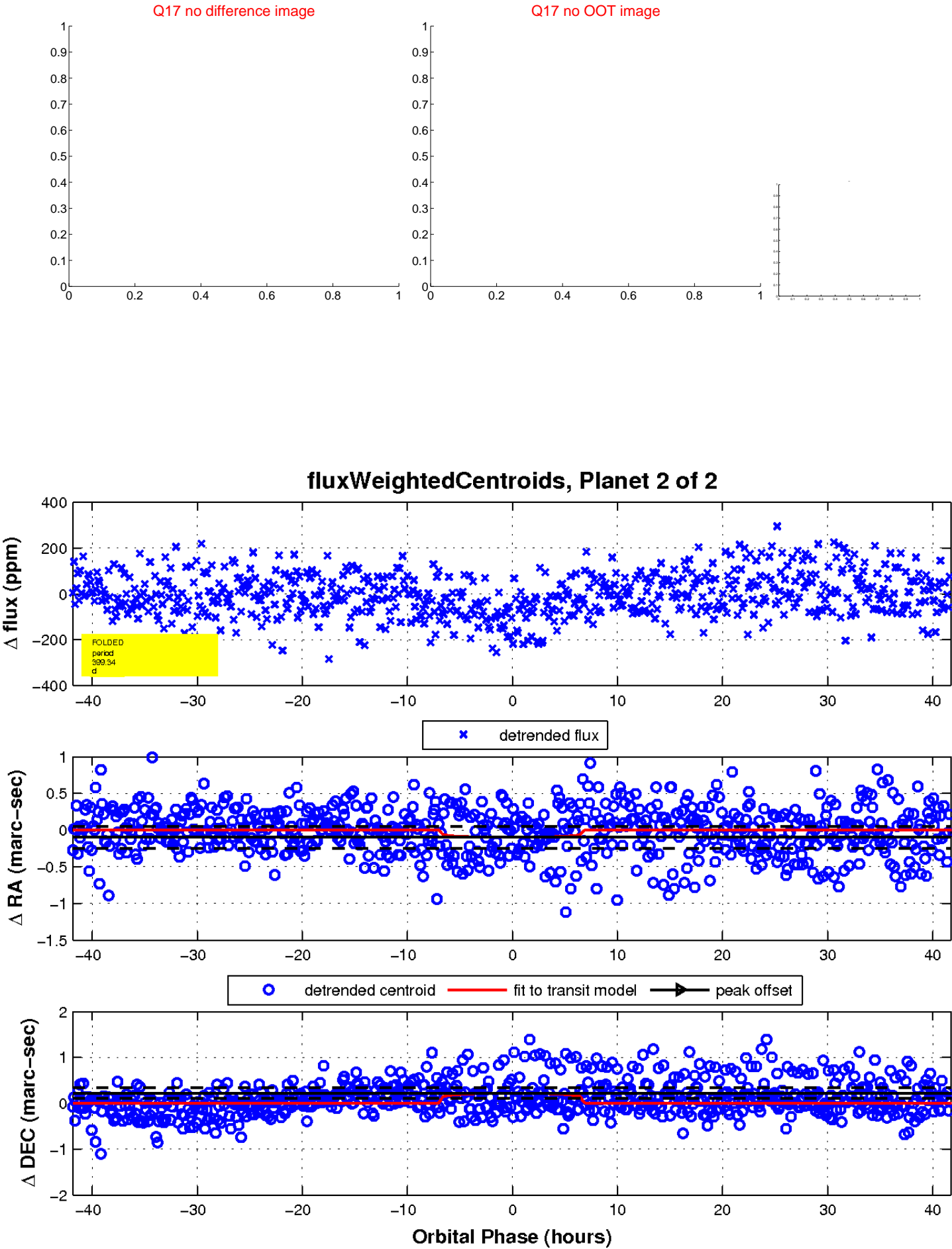
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



Declination