

KIC 005385439

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})
005385439-01	OBS	2478.01	12.425362	141.531660	164.3	23.929	19.1	24.4	0.94	5428	1.63	71.31
005385439-02	OBS	No	12.425306	133.978346	144.9	28.122	18.5	24.9	0.94	5428	1.56	71.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385439-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—HALO_GHOST—EPHEM_MATCH
005385439-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—HALO_GHOST—EPHEM_MATCH

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.

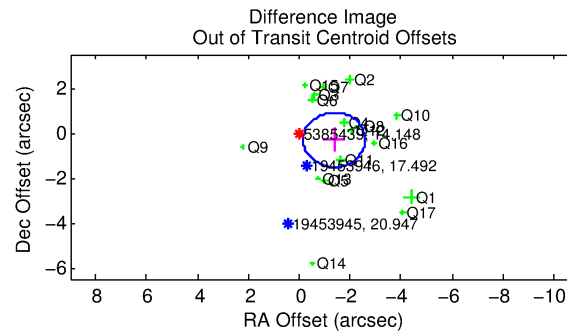
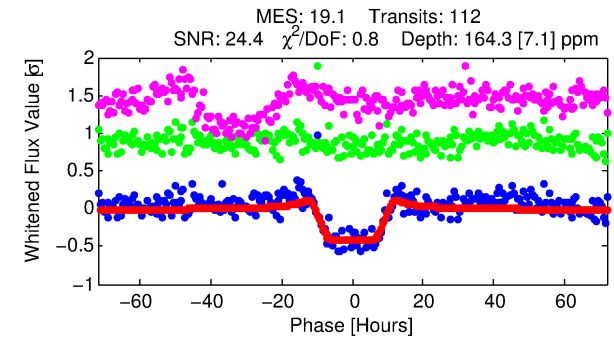
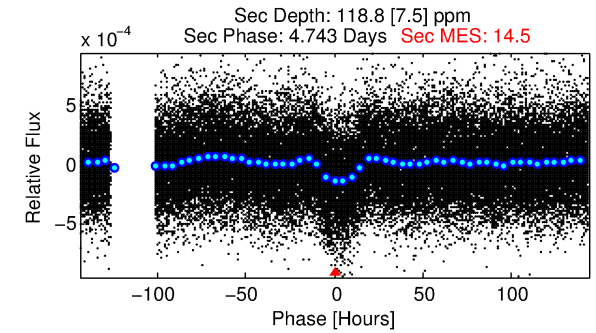
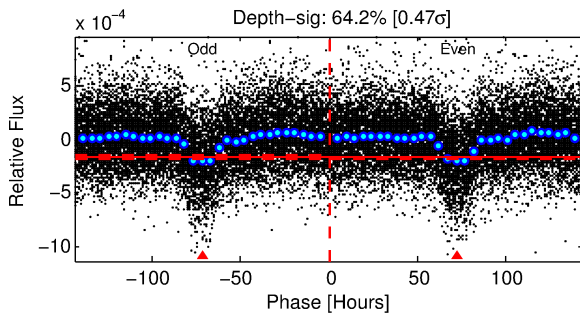
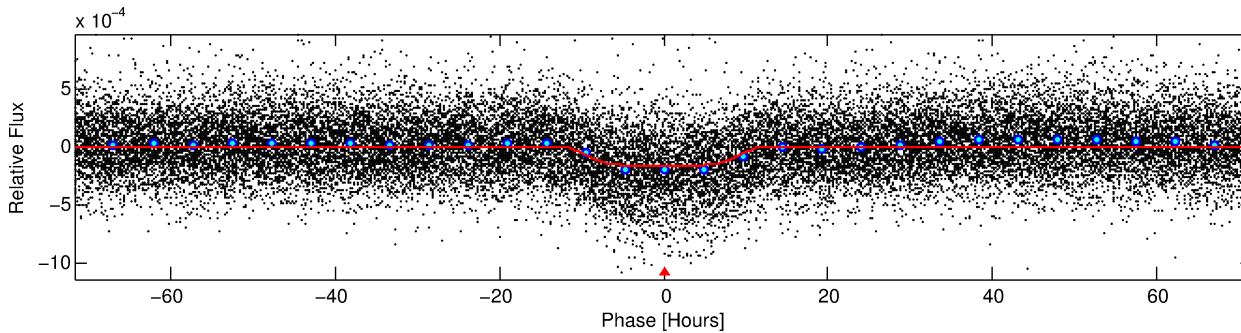
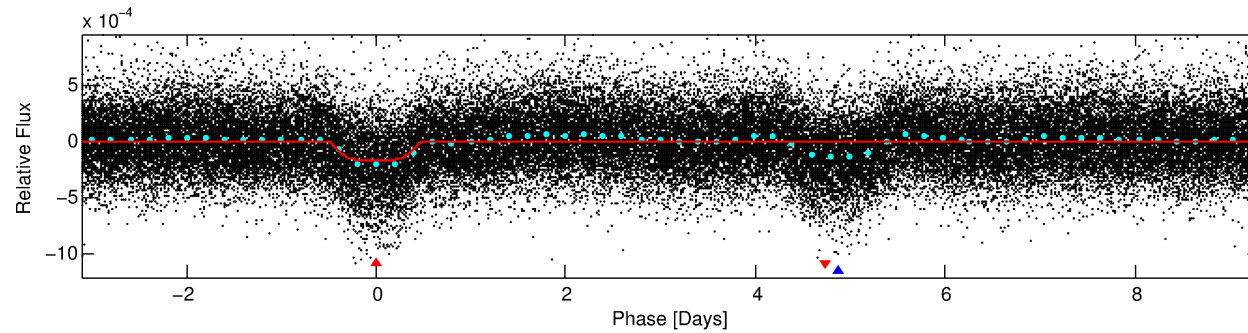
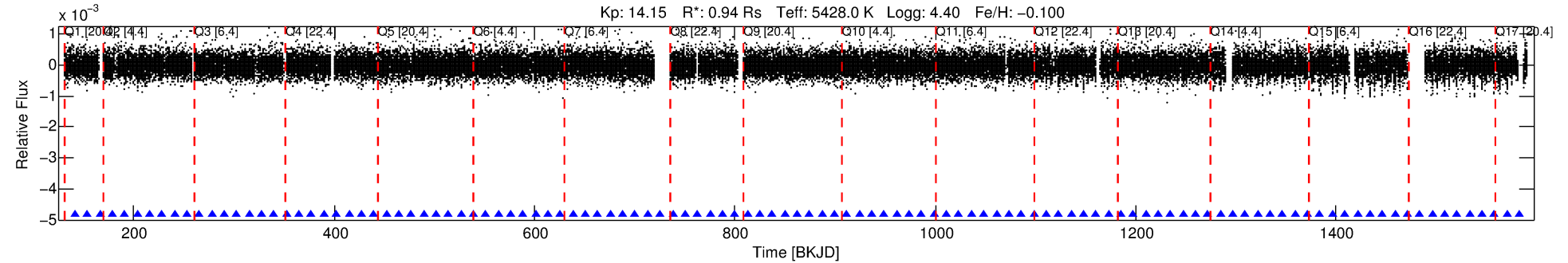
Ephemeris Match Information For 005385439-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005385439-01	5385439	V380-Cyg-pri	5385723	1:1	200.5	4	-50	5.77	14.15	883.74	Direct-PRF	0	1.03	0.28

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5385439 Candidate: 1 of 2 Period: 12.425 d
KOI: K02478.01 Corr: 0.954



DV Fit Results:

Period = 12.42536 [0.00027] d
Epoch = 141.5317 [0.0167] BKJD
Rp/R* = 0.0159 [0.0005]
a/R* = 1.55 [0.07]
b = 0.97 [0.01]
Seff = 71.31 [26.55]
Teq = 741 [69] K
Rp = 1.63 [0.44] Re
a = 0.0982 [0.0231] AU
Ag = 237.29 [86.25] [2.74 σ]
Teffp = 4496 [165] K [20.97 σ]

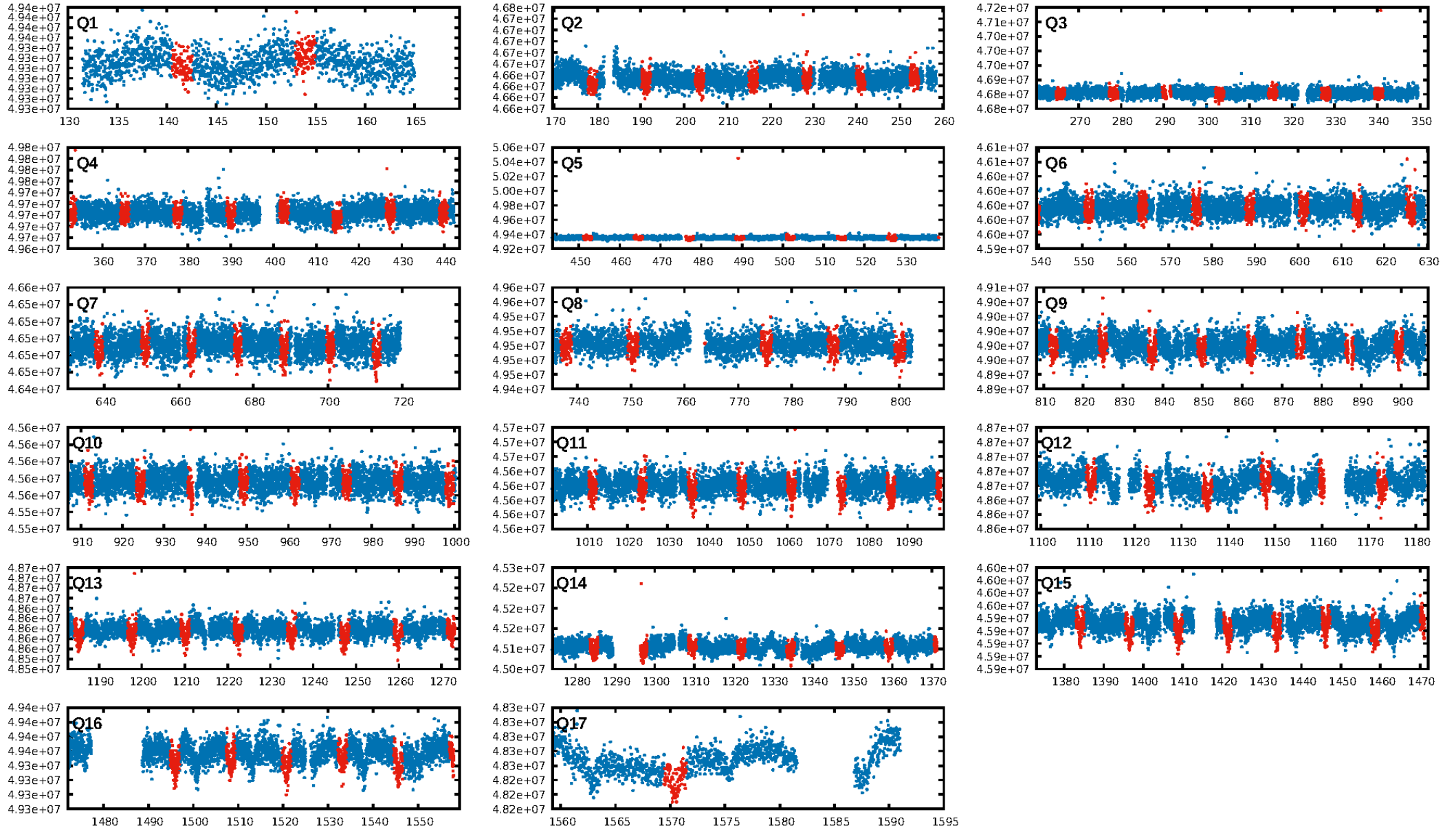
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.13e-84
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: 0.105
Centroid-sig: 0.0%
Centroid-so: 2.358 arcsec [5.11 σ]
OotOffset-rm: 1.405 arcsec [3.47 σ]
KicOffset-rm: 1.238 arcsec [3.00 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.12 [2/17]
DiffImageOverlap-fno: 1.00 [17/17]

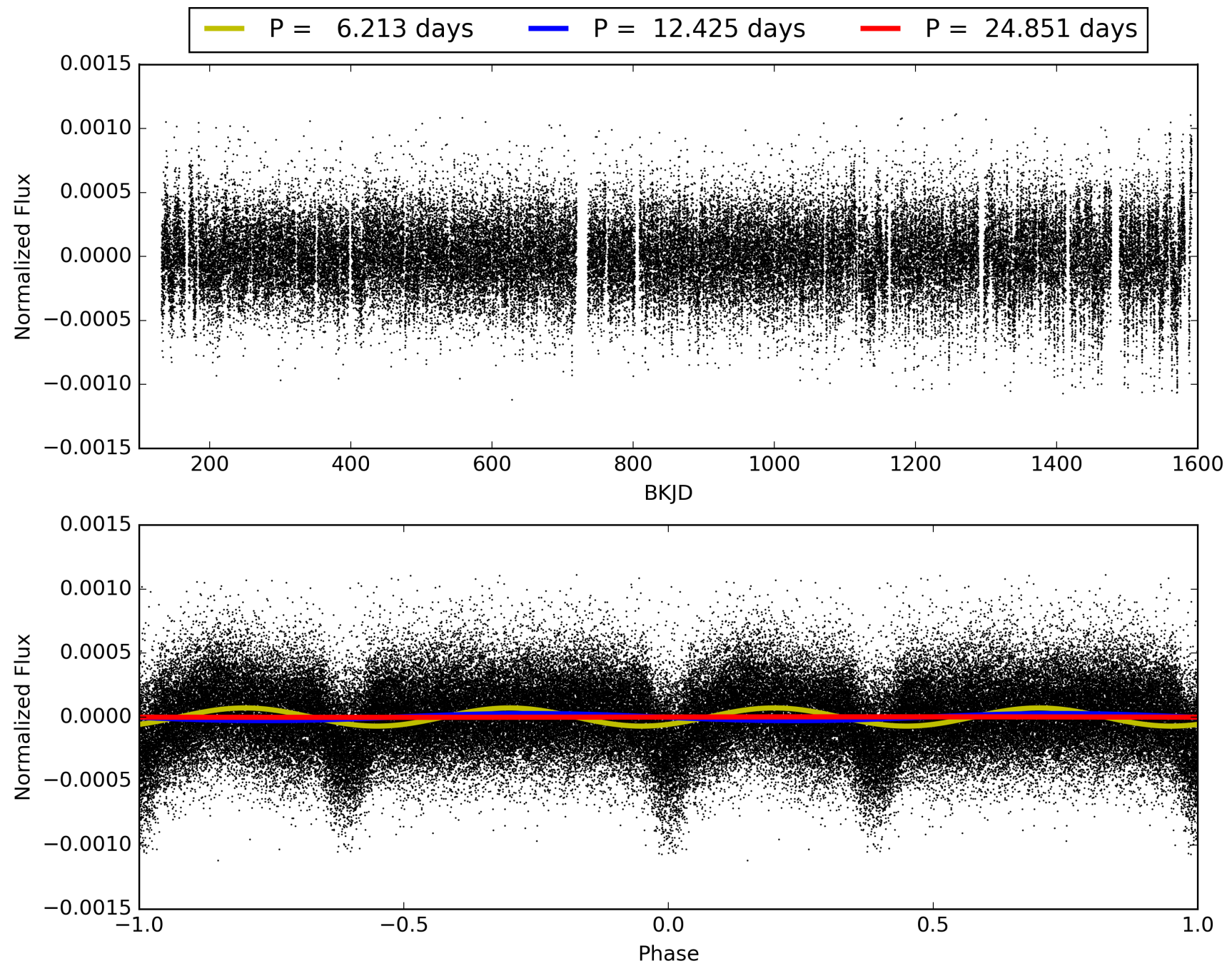
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005385439-01, PDC Light Curves

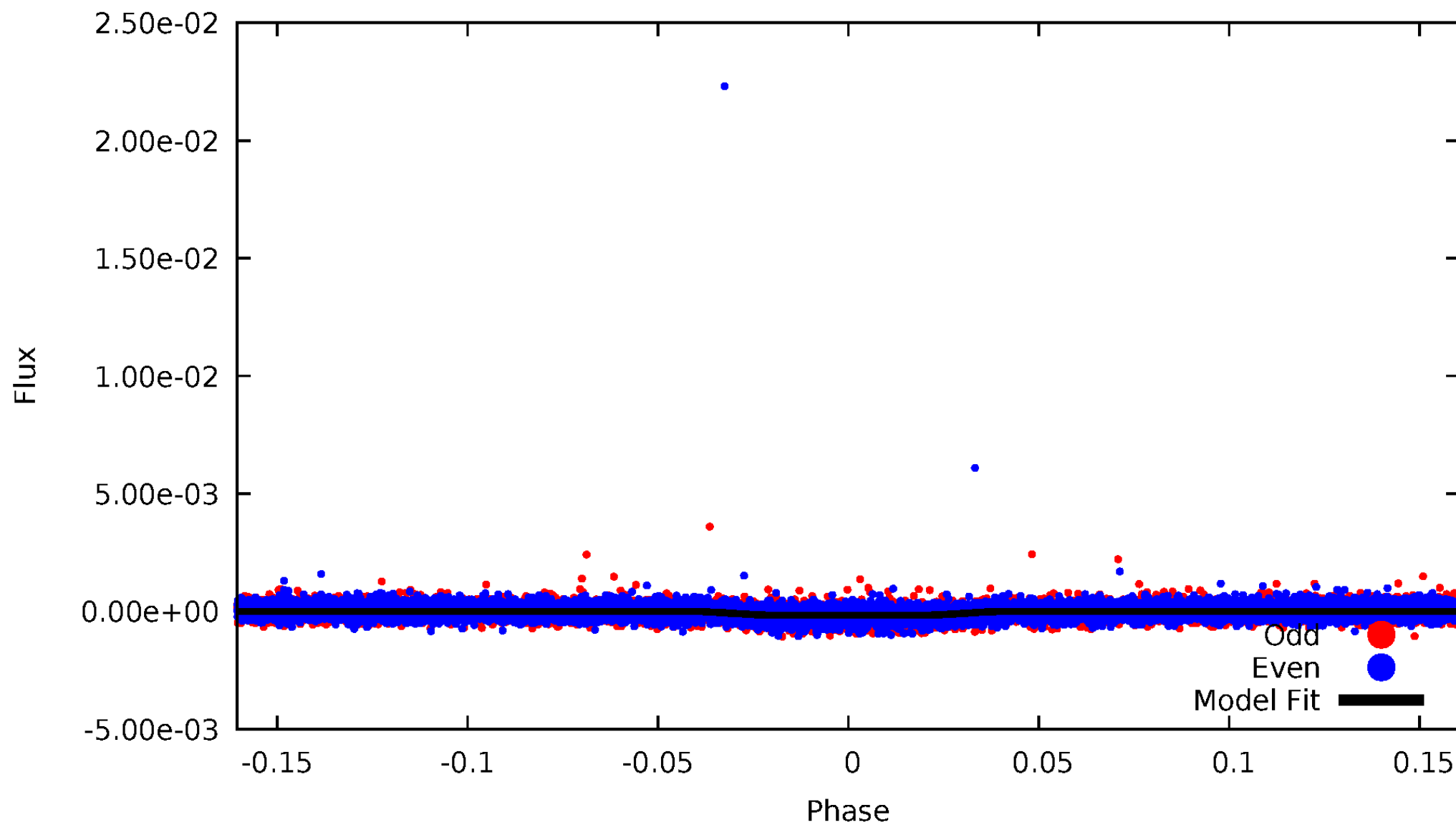


TCE 005385439-01



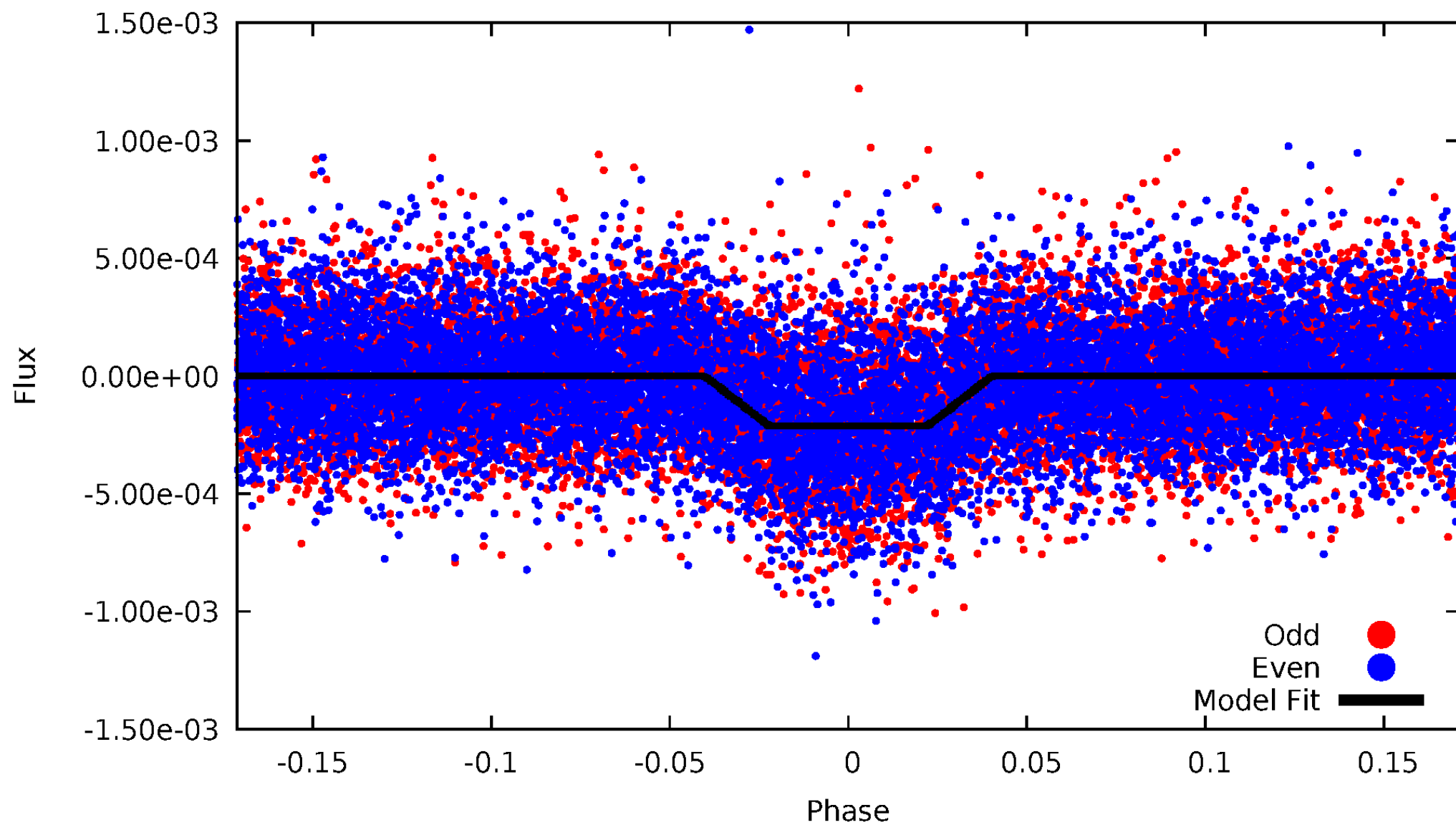
DV Odd/Even

TCE 005385439-01

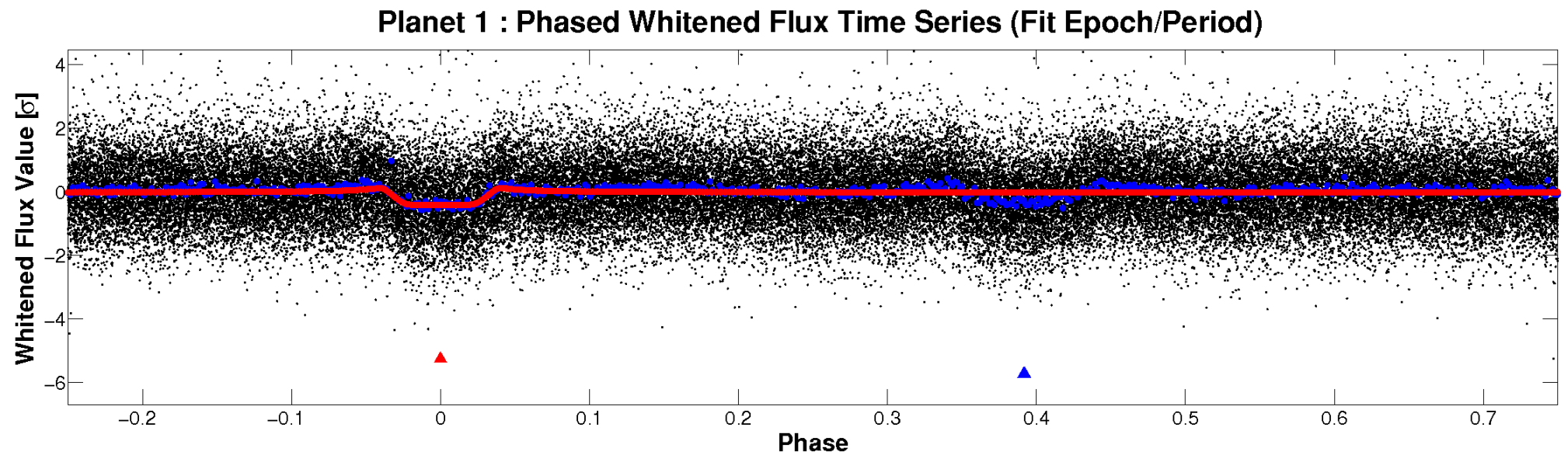
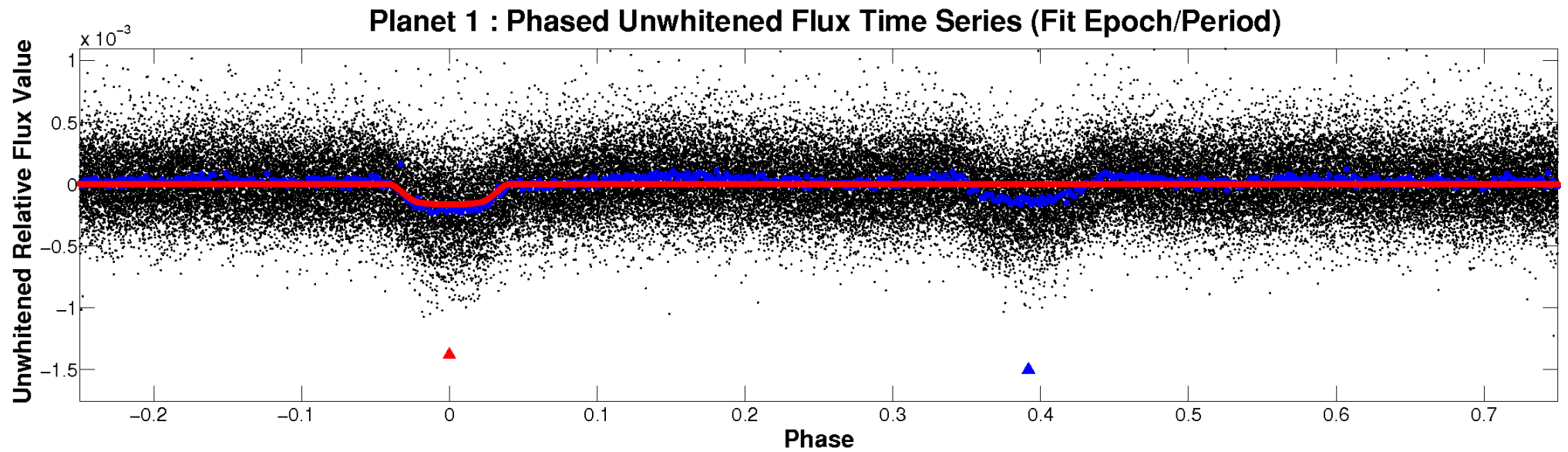


ALT Odd/Even

TCE 005385439-01

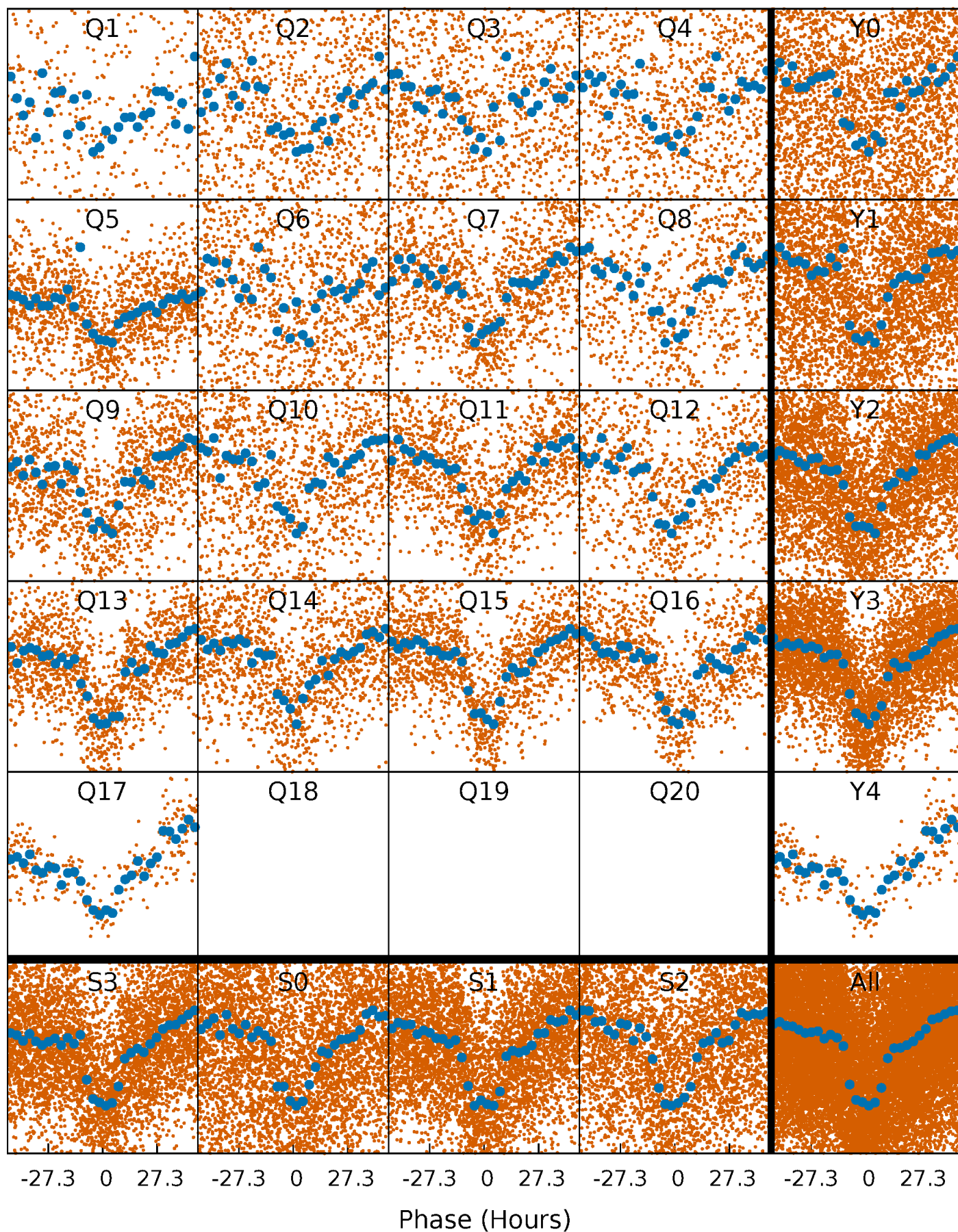


Non-Whitened Vs. Whitened Light Curve



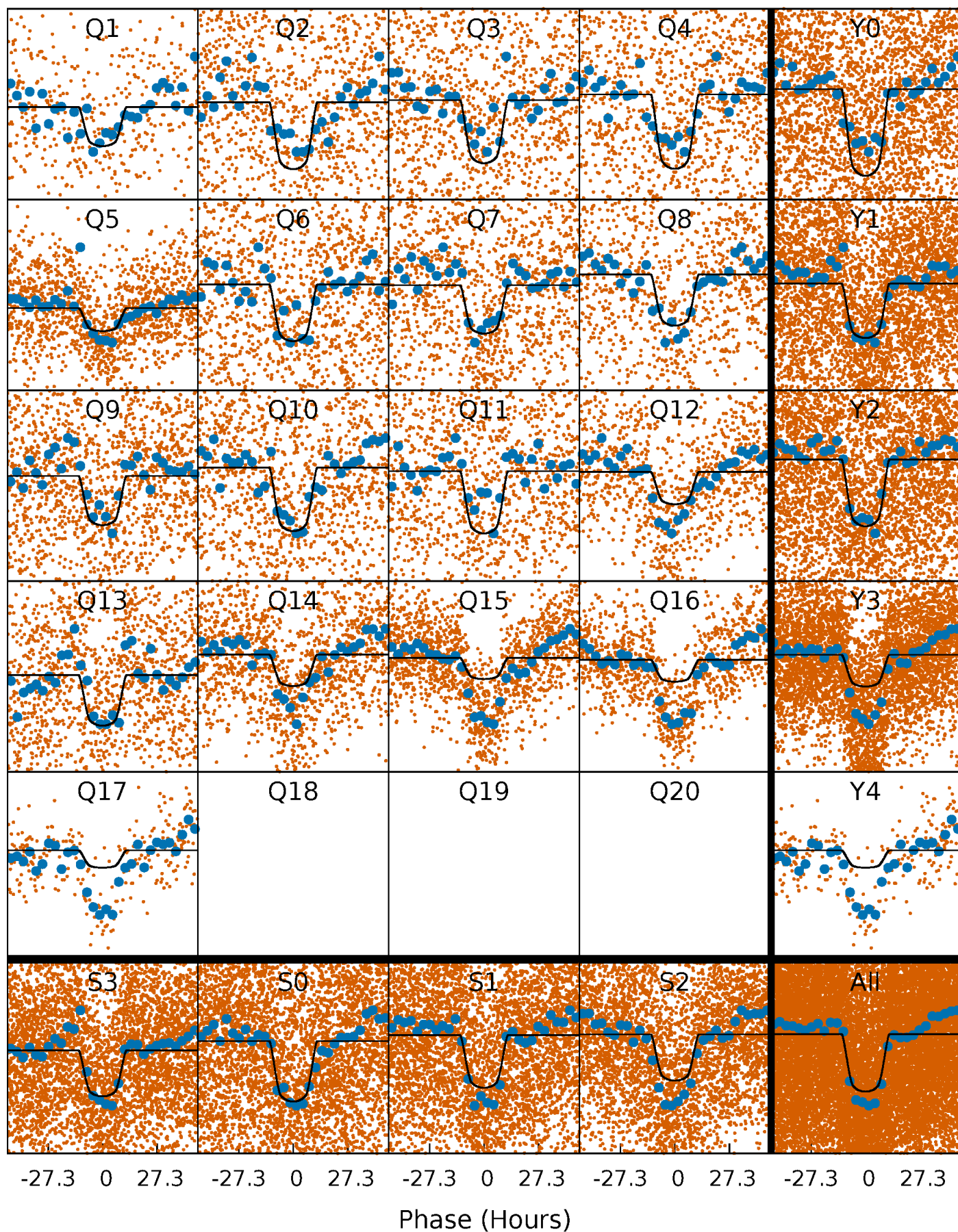
PDC Quarter-Phased Transit Curves

TCE 005385439-01 P= 12.425362 Days $T_0=141.531660$ (BKJD)



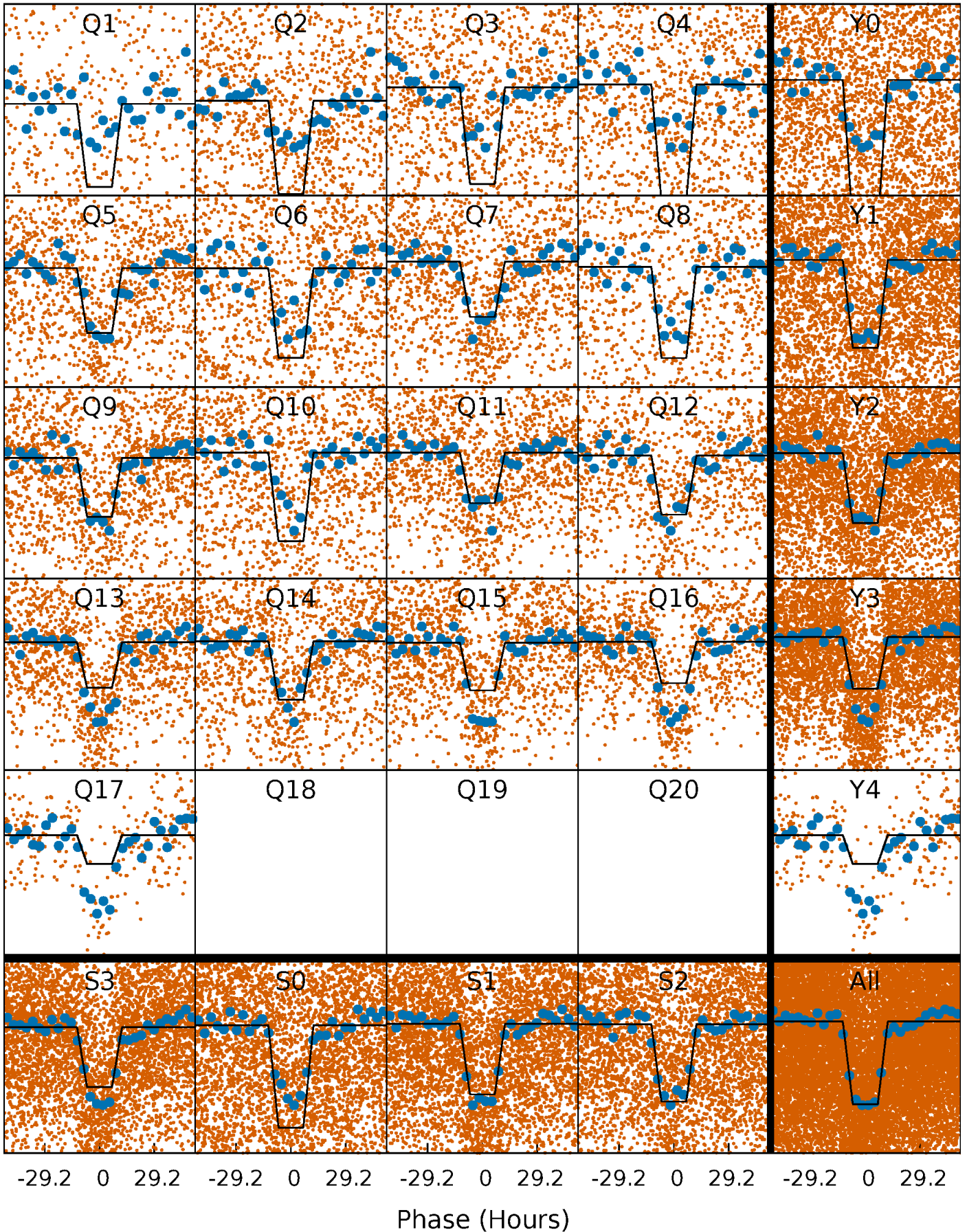
DV Quarter-Phased Transit Curves

TCE 005385439-01 P= 12.425362 Days $T_0=141.531660$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

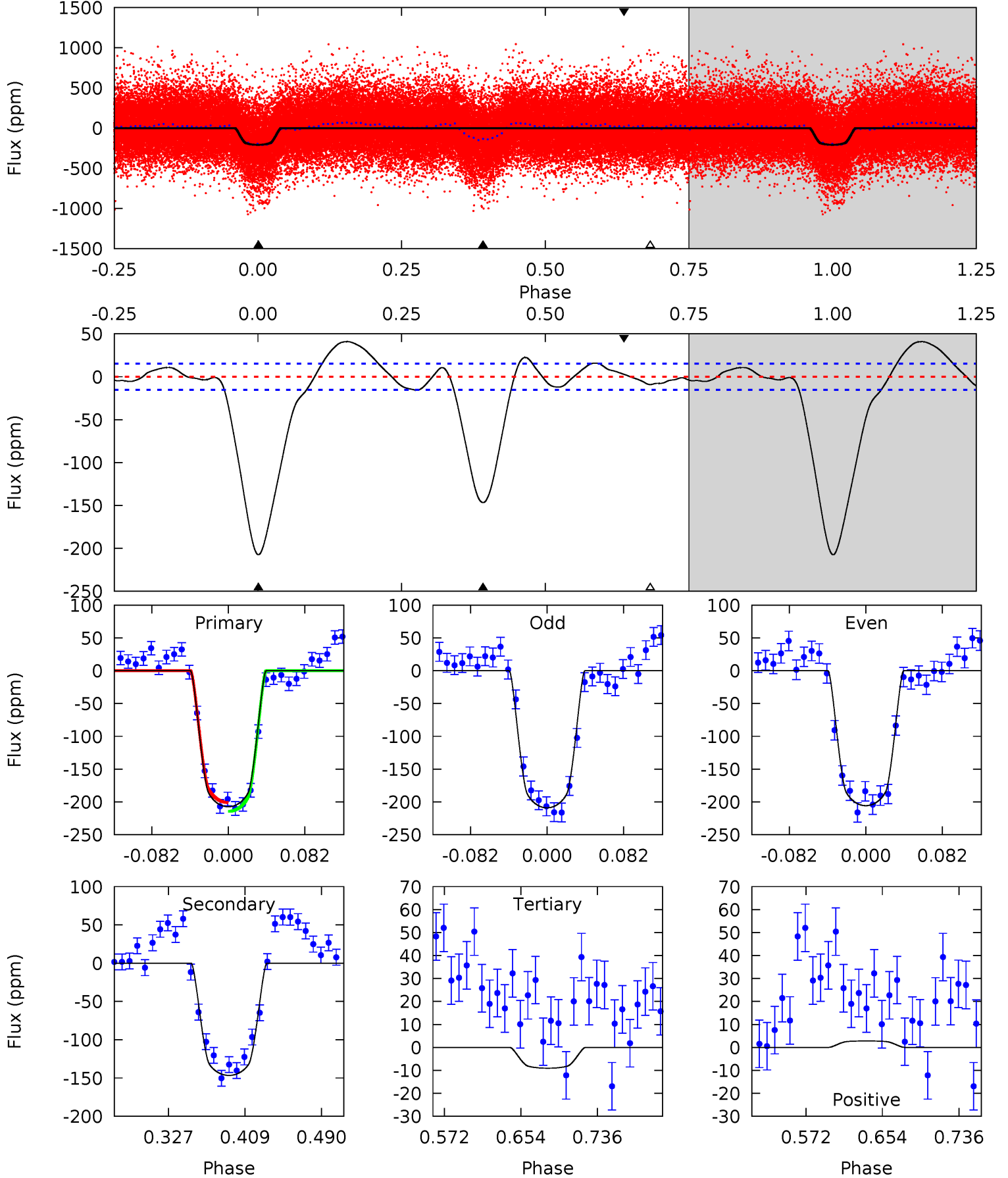
TCE 005385439-01 P= 12.425672 Days $T_0=141.516169$ (BKJD)



DV Model-Shift Uniqueness Test

005385439-01, P = 12.425362 Days, E = 129.106298 Days

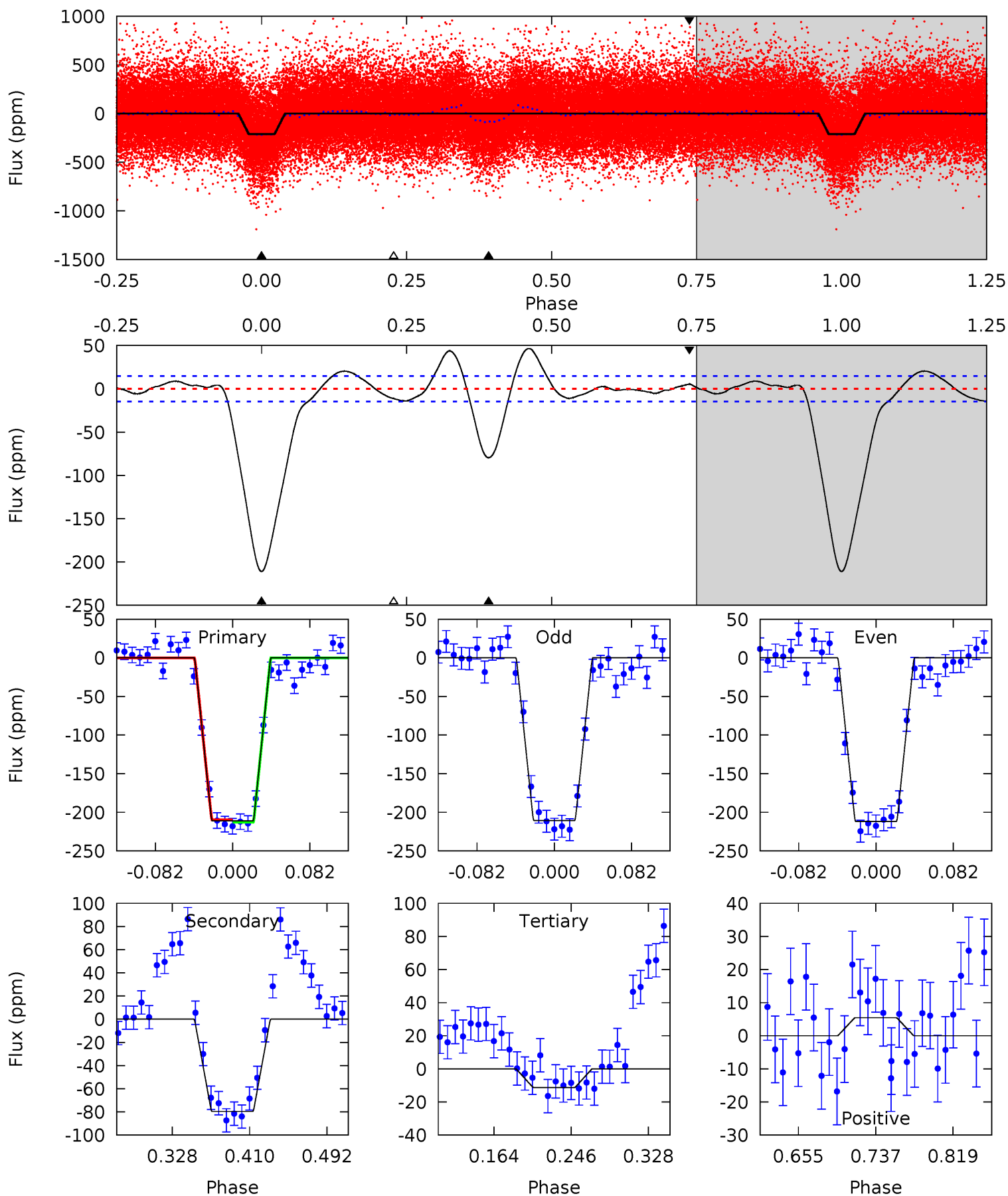
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.5	44.2	2.74	0.85	4.61	1.74	4.20	59.8	61.7	41.5	43.4	0.49	1.17	0.17	1.98



Alt Model-Shift Uniqueness Test

005385439-01, P = 12.425672 Days, E = 129.090497 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
66.1	25.0	3.53	1.71	4.61	1.74	2.92	62.6	64.4	21.4	23.2	0.21	1.06	0.18	0.48



Stellar Parameters For KIC 005385439

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5428^{+161}_{-145}	$4.404^{+0.144}_{-0.198}$	$-0.100^{+0.300}_{-0.300}$	$0.940^{+0.253}_{-0.148}$	$0.816^{+0.119}_{-0.060}$	$1.385^{+0.895}_{-0.695}$
	+3%/-3%	+3%/-4%	+300%/-300%	+27%/-16%	+15%/-7%	+65%/-50%
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 005385439-01 / KOI 2478.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-147 ± 3	$1.64^{+0.25}_{-0.16}$	1040^{+70}_{-60}	4832^{+144}_{-144}	290^{+67}_{-64}
Alt.	-80 ± 3	$1.52^{+0.23}_{-0.18}$	1041^{+79}_{-63}	4421^{+139}_{-117}	185^{+46}_{-44}

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

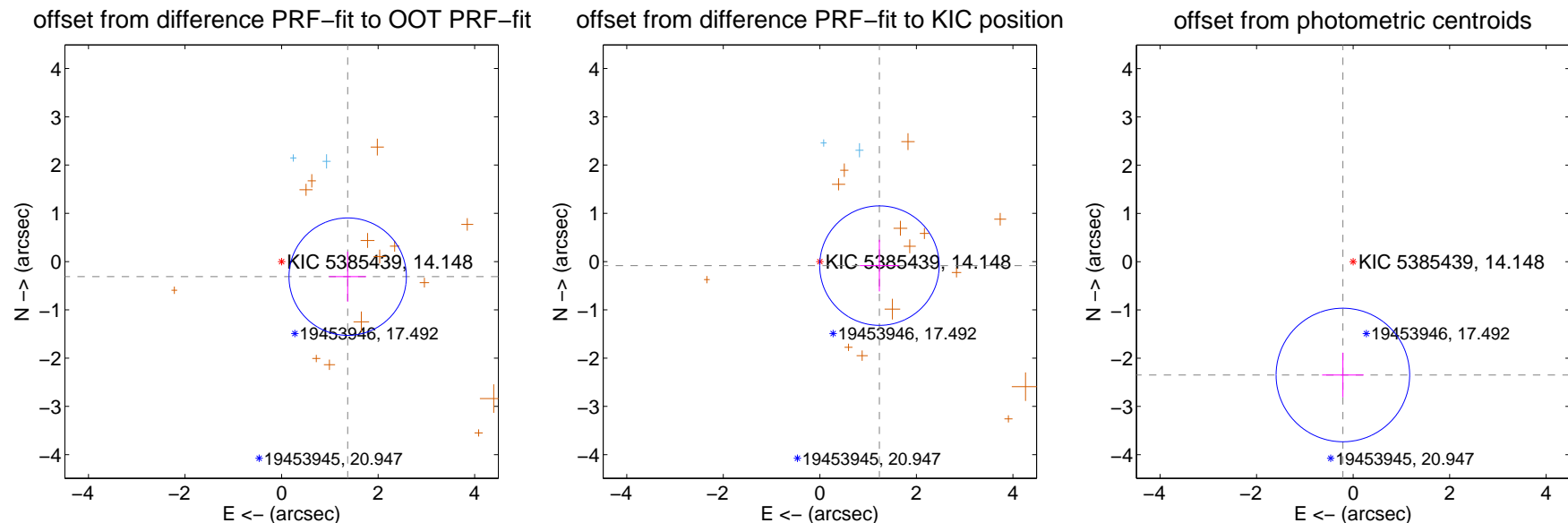
DV Centroid Data

Supplemental centroid analysis for 005385439-01. Kepler magnitude: 14.15. Transit SNR 24.36

There are 2 quarters with good PRF difference image offsets

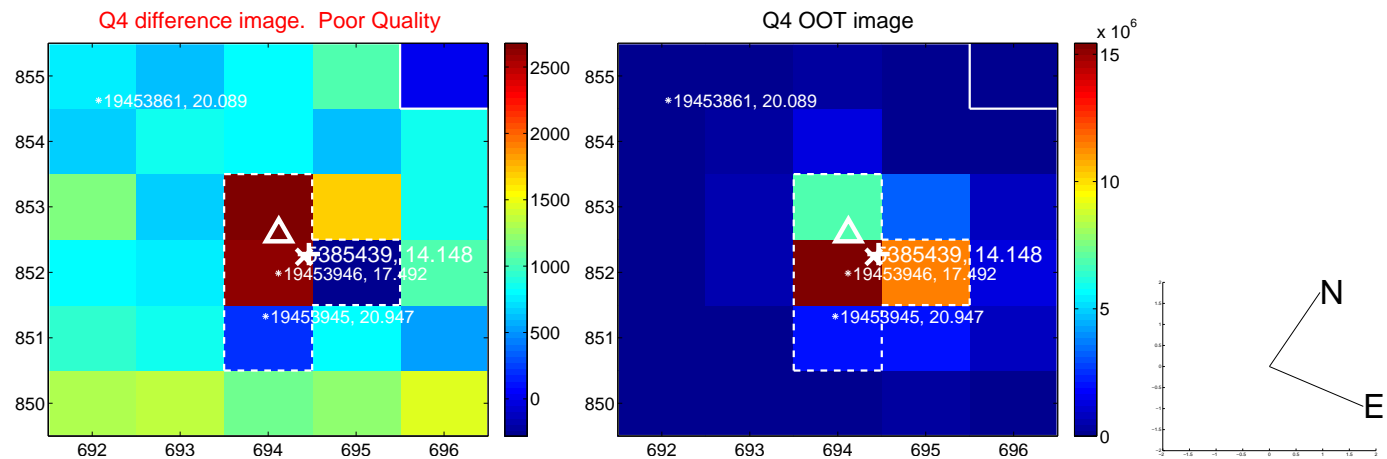
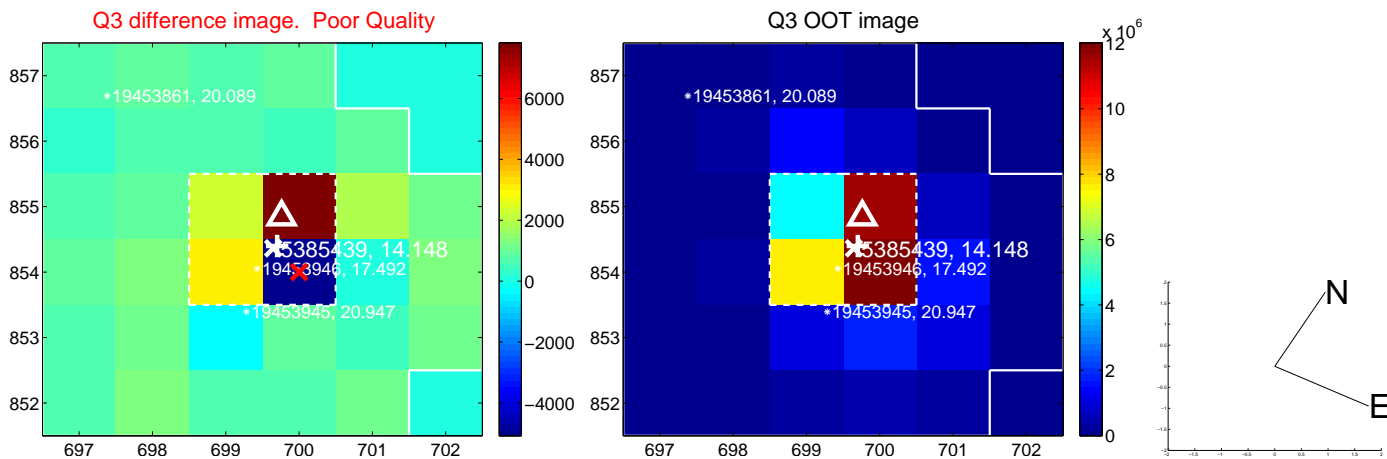
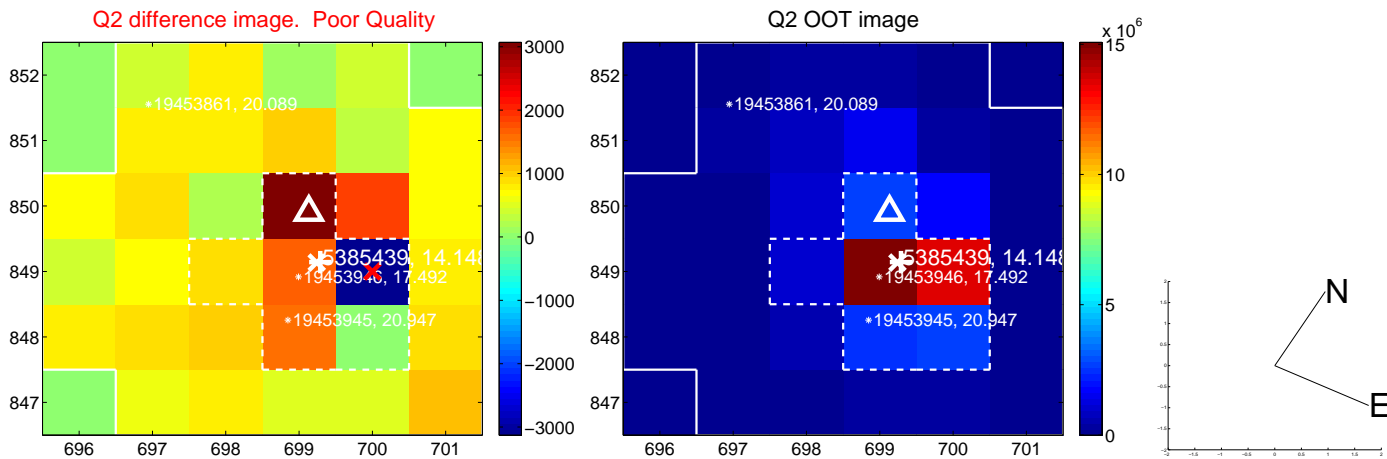
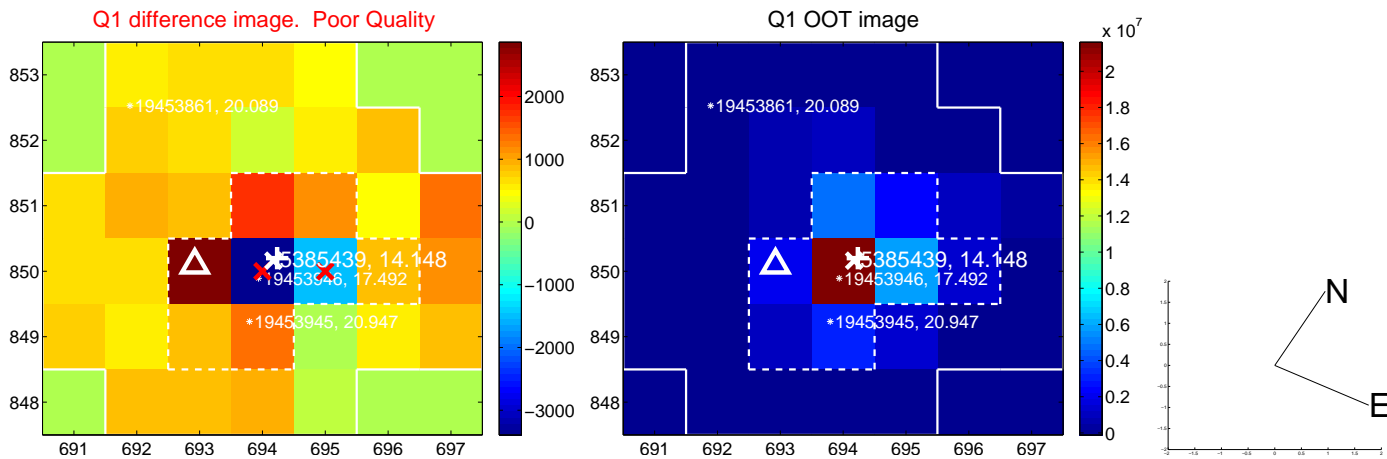
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.405 ± 0.405	3.47	-1.370 ± 0.385	-0.312 ± 0.518
PRF-fit source offset from KIC position	1.238 ± 0.413	3.00	-1.235 ± 0.406	-0.084 ± 0.535
photometric centroid source offset	2.36 ± 0.46	5.11	0.21 ± 0.43	-2.35 ± 0.46

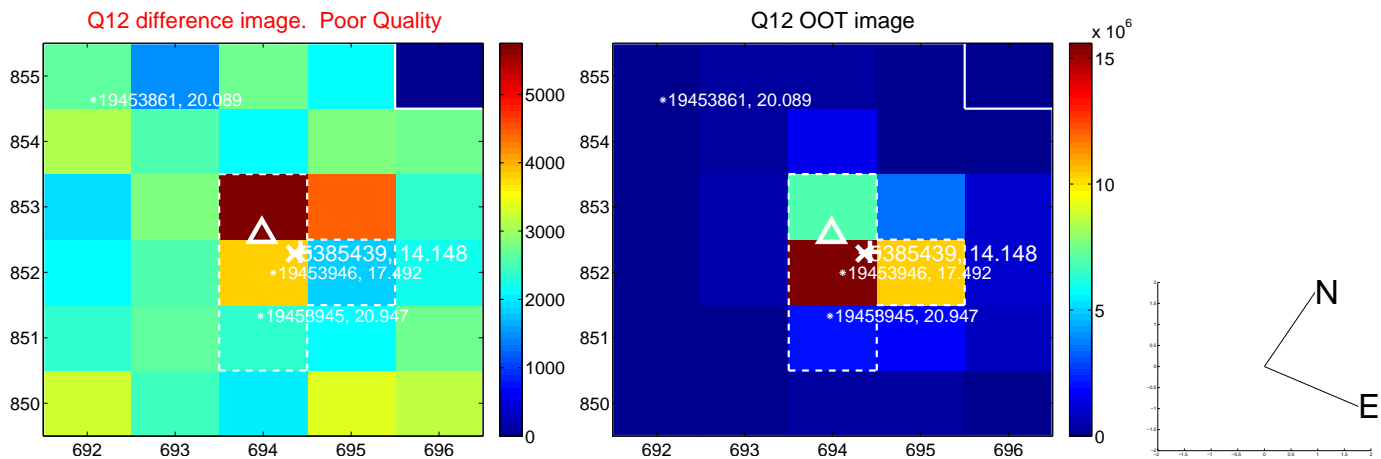
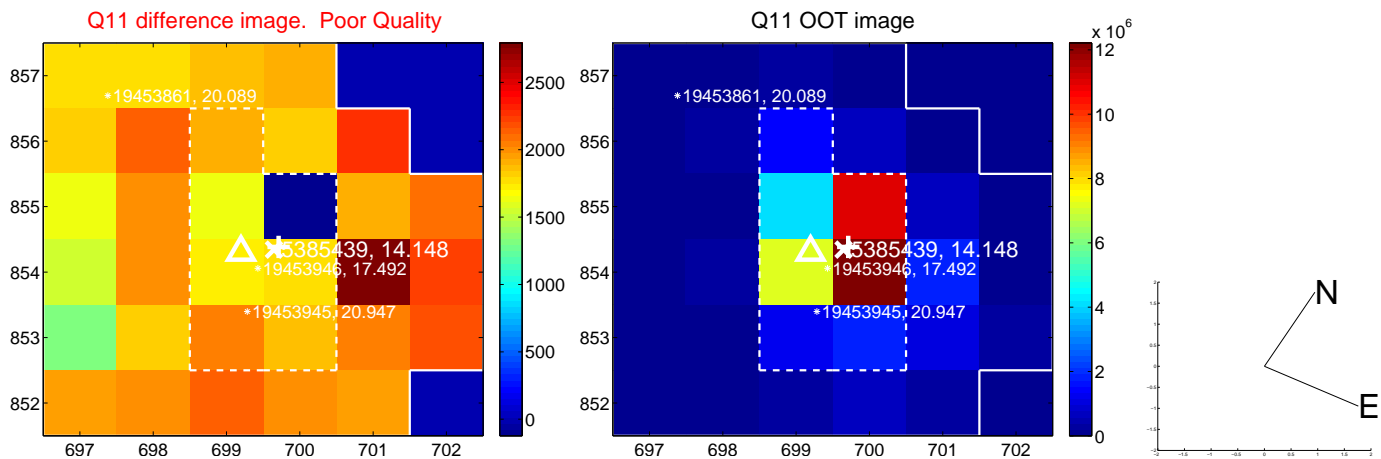
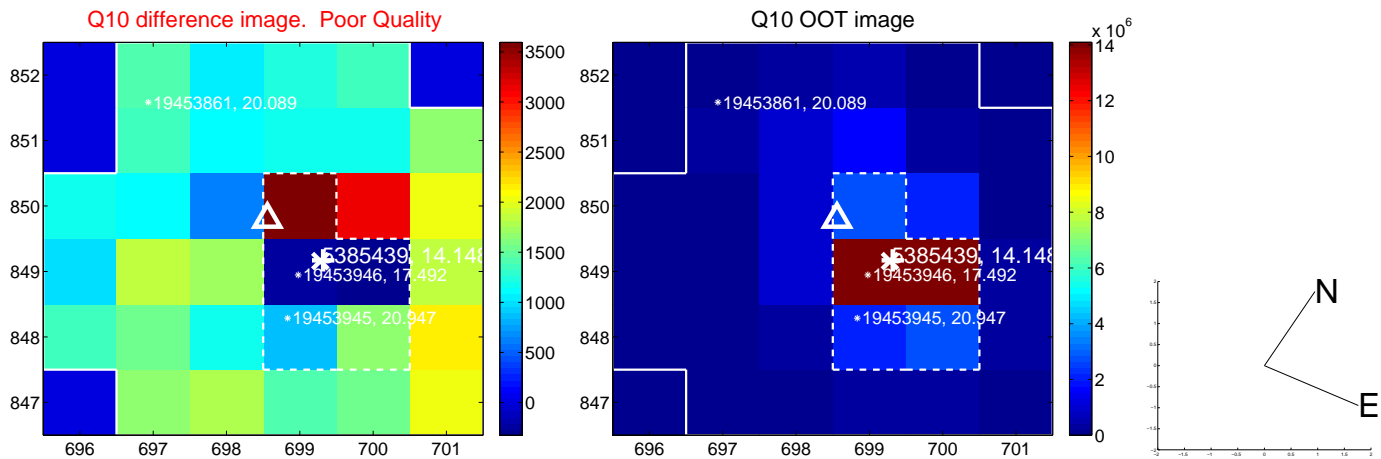
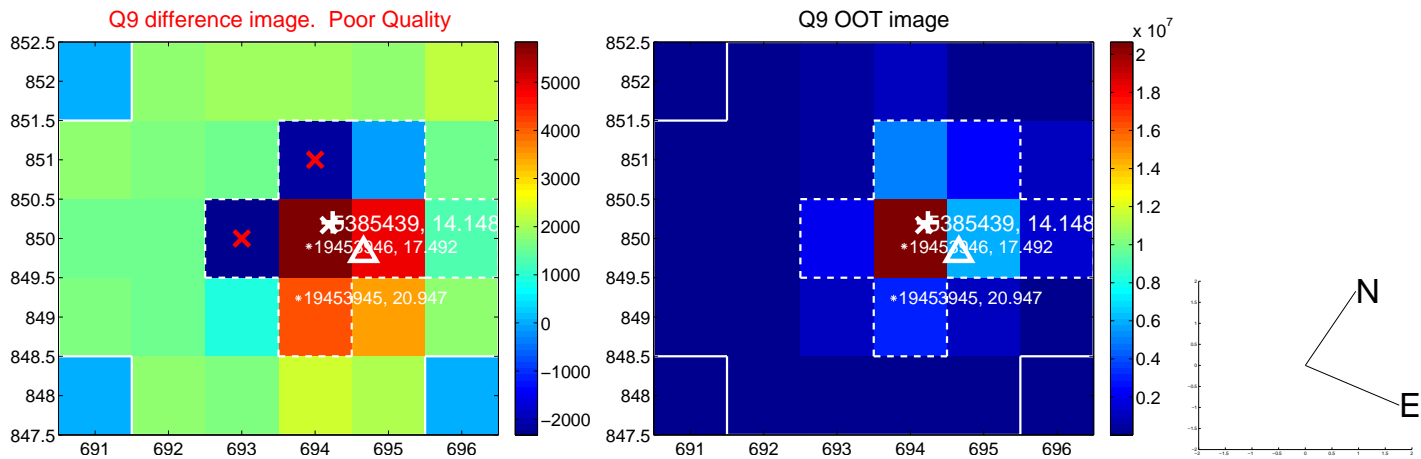


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

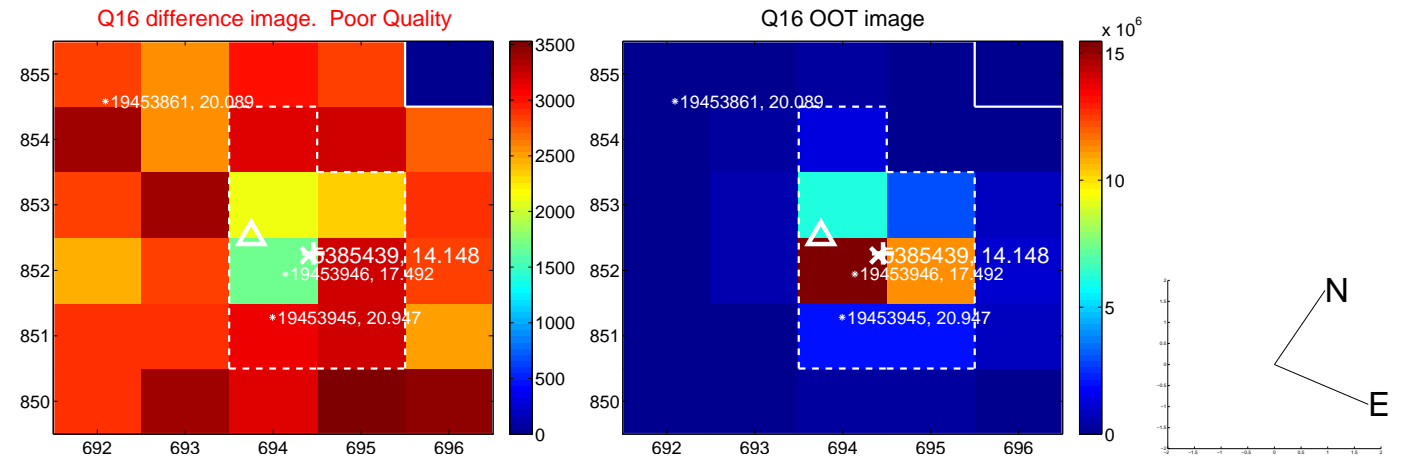
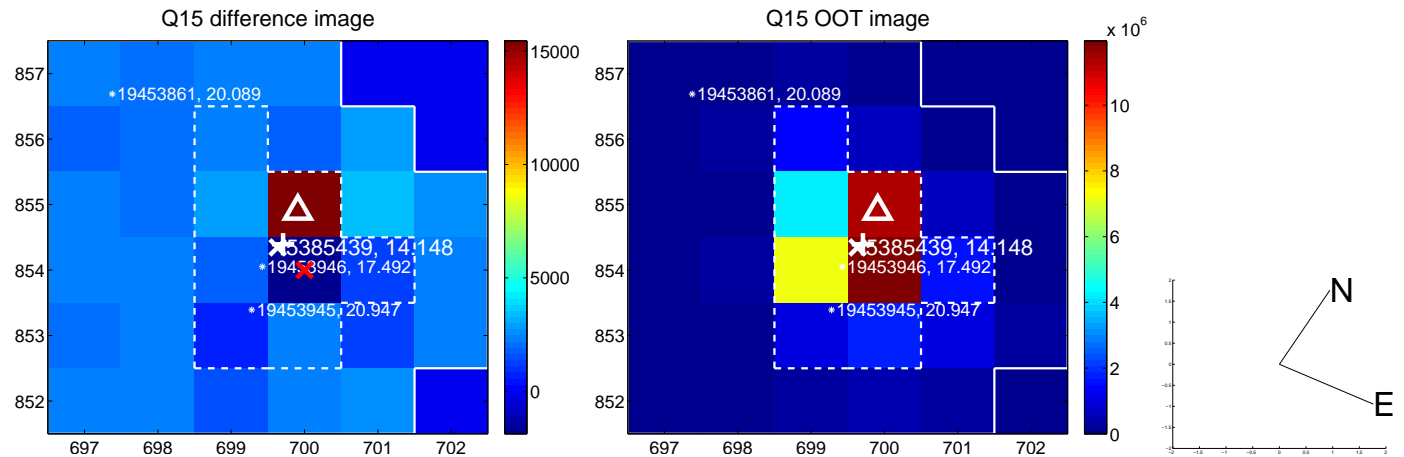
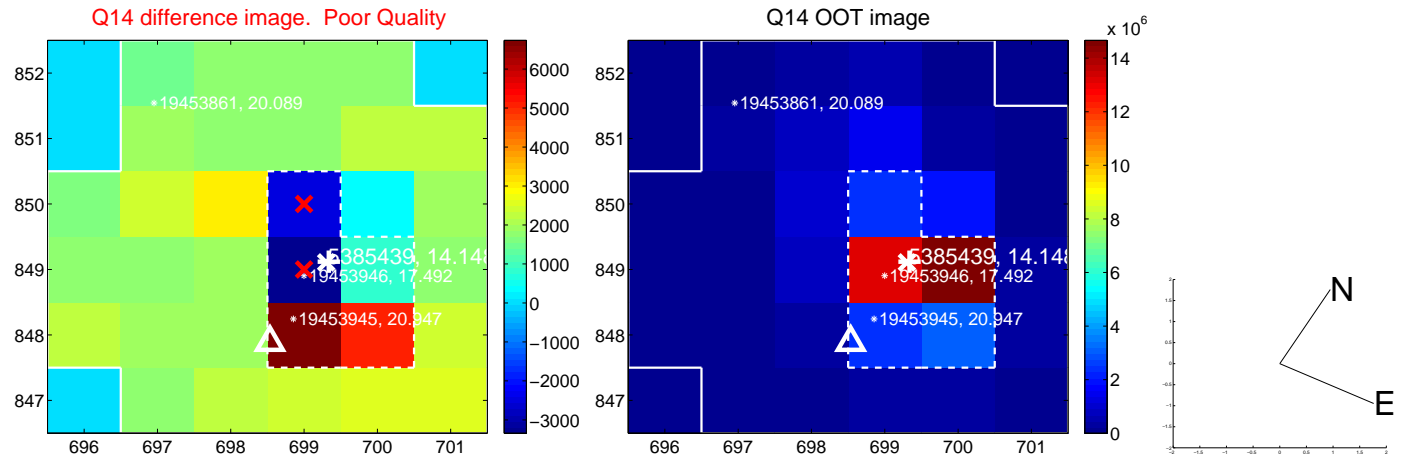
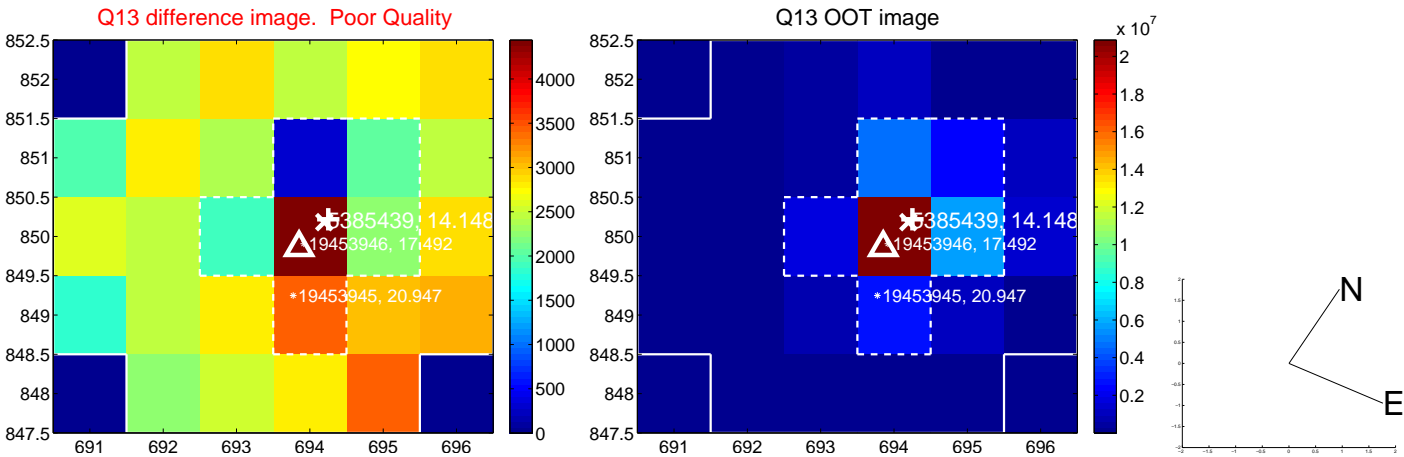
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



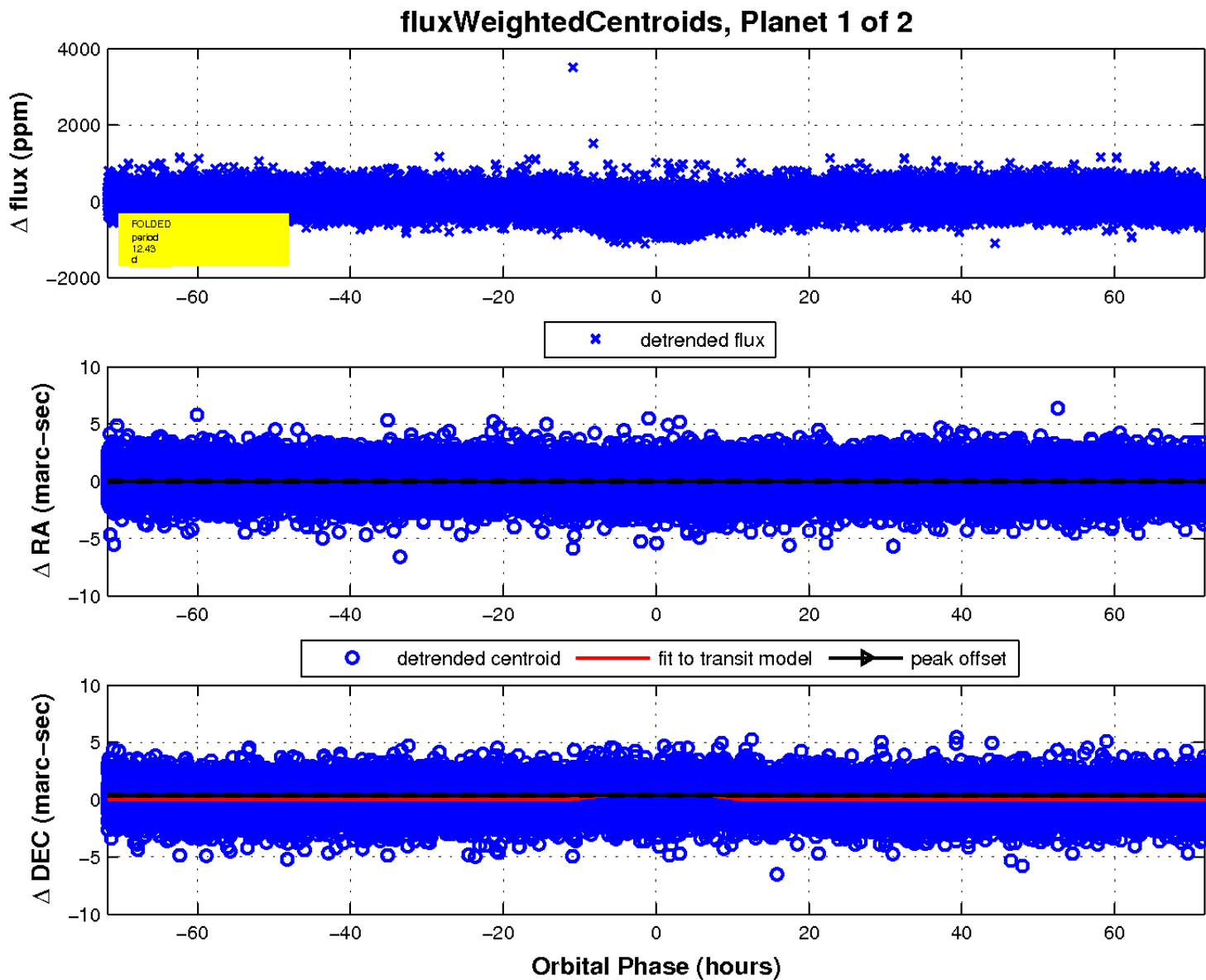
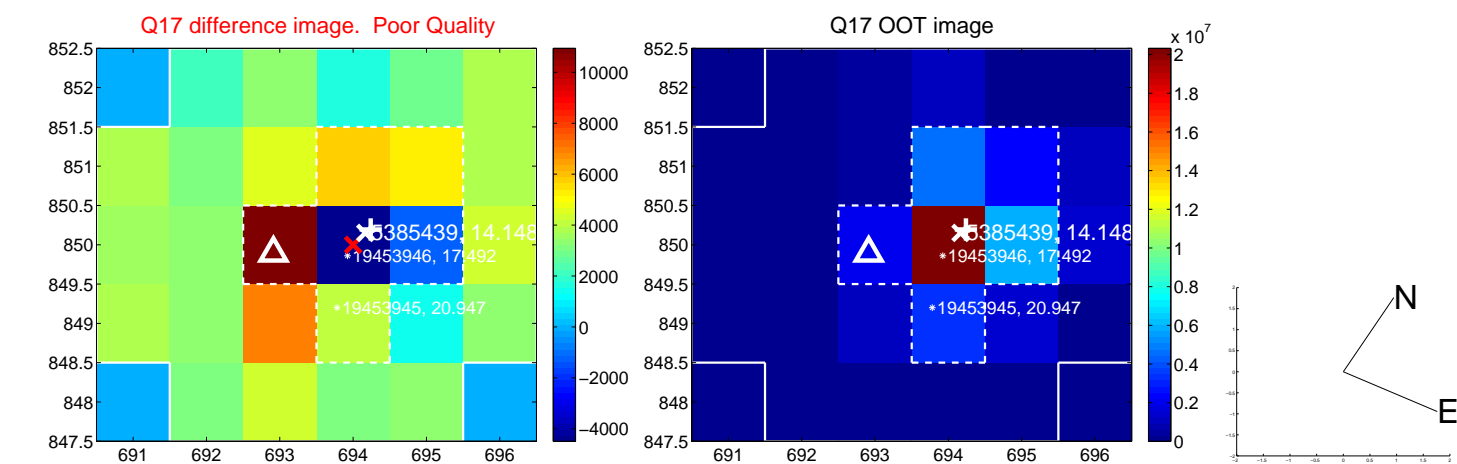
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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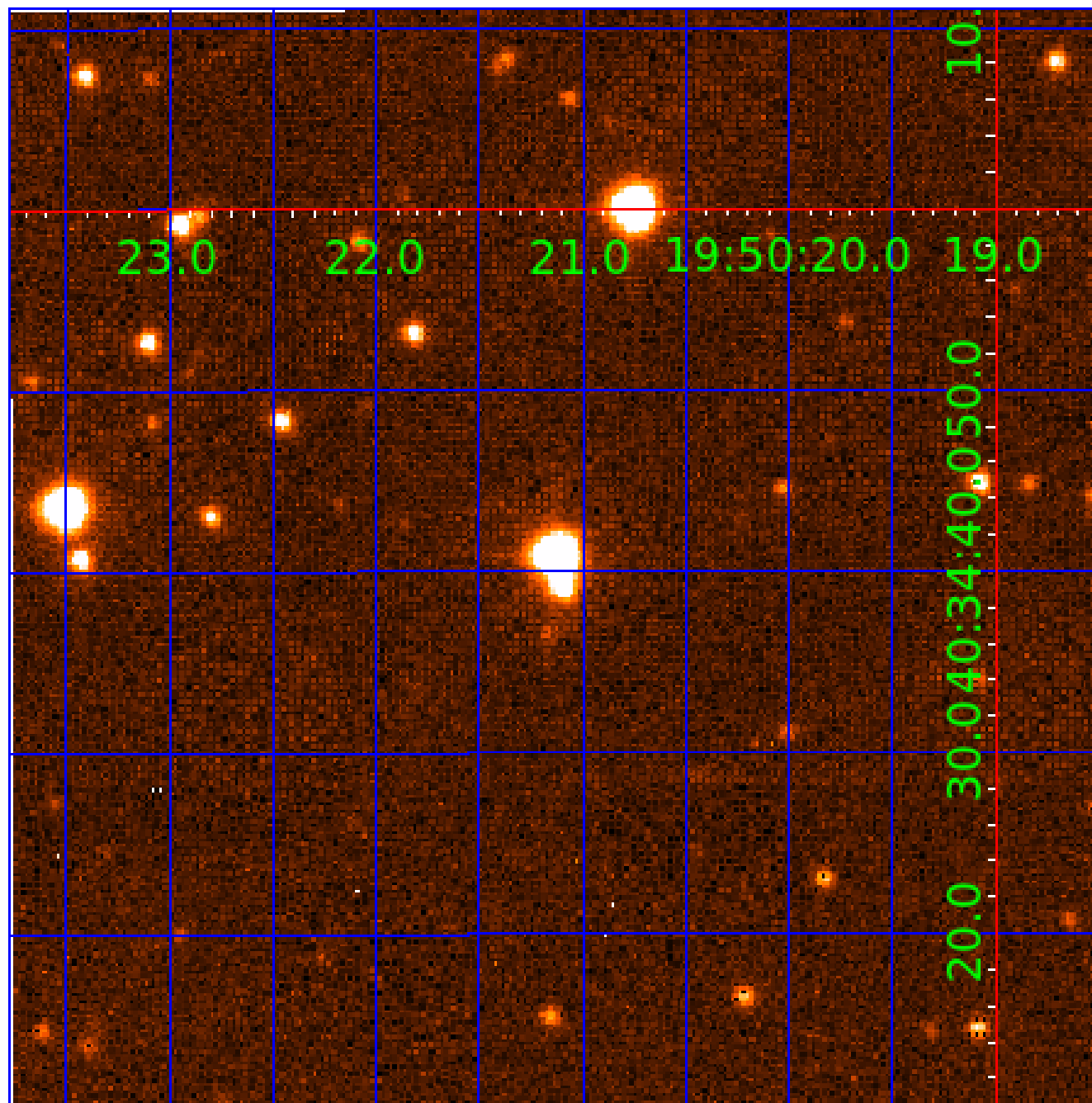


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005385439

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})
005385439-01	OBS	2478.01	12.425362	141.531660	164.3	23.929	19.1	24.4	0.94	5428	1.63	71.31
005385439-02	OBS	No	12.425306	133.978346	144.9	28.122	18.5	24.9	0.94	5428	1.56	71.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385439-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—HALO_GHOST—EPHEM_MATCH
005385439-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—HALO_GHOST—EPHEM_MATCH

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 005385439-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005385439-02	5385439	V380-Cyg-sec	5385723	1:1	200.5	4	-50	5.77	14.15	889.90	Direct-PRF	0	0.51	0.95

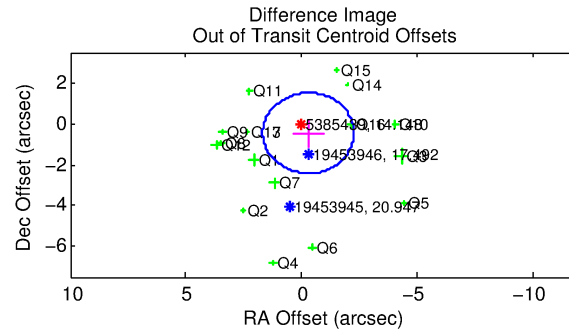
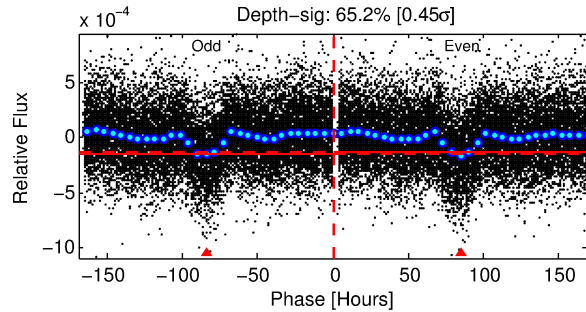
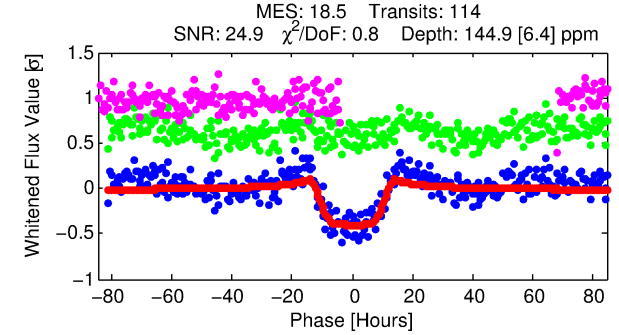
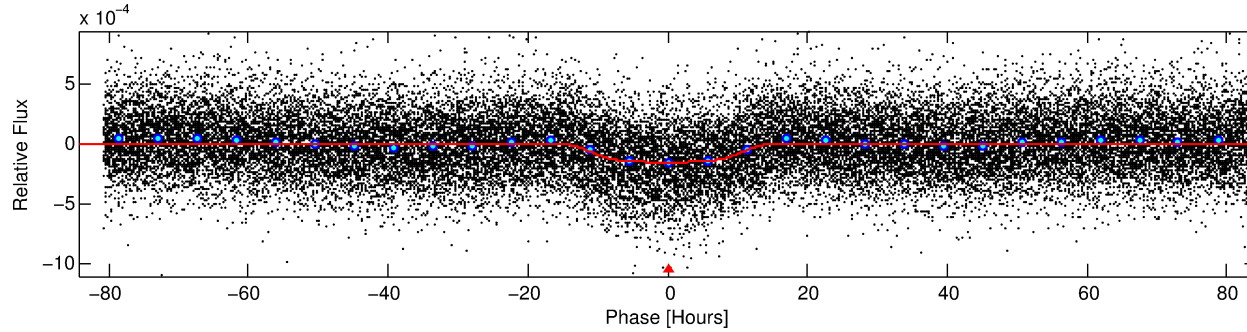
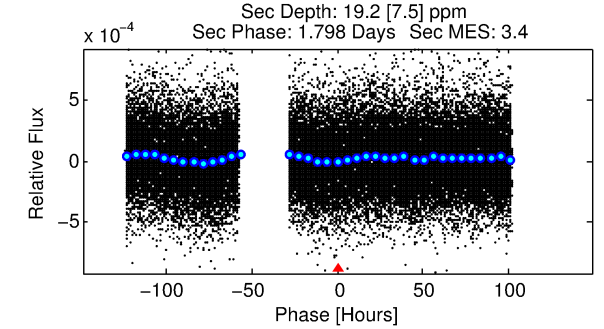
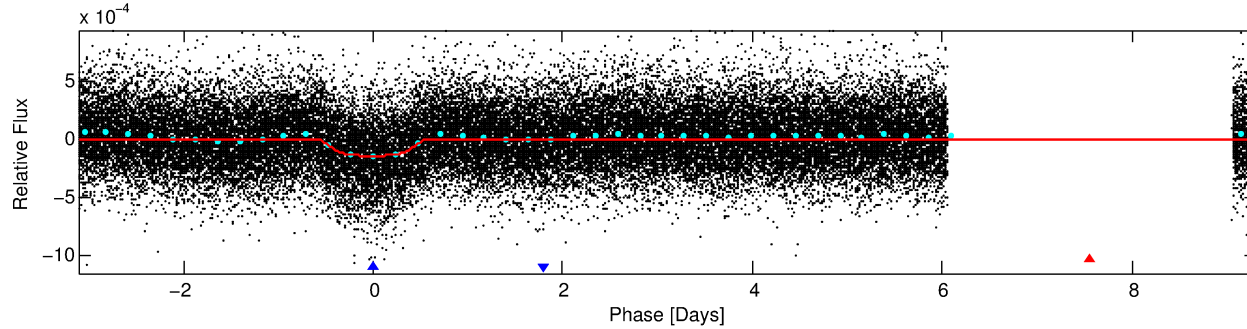
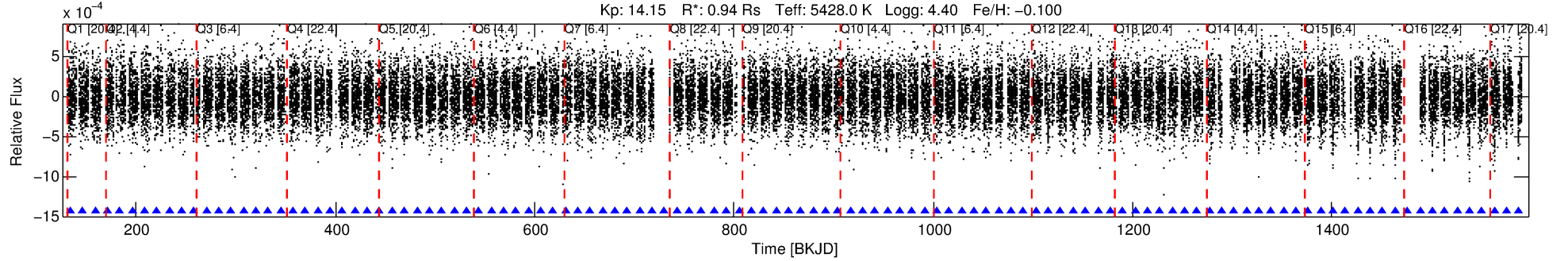
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5385439 Candidate: 2 of 2 Period: 12.425 d

KOI: K02478 Corr: No Ephemeris Match

Kp: 14.15 R*: 0.94 Rs Teff: 5428.0 K Logg: 4.40 Fe/H: -0.100



DV Fit Results:

Period = 12.42531 [0.00033] d
Epoch = 133.9783 [0.0206] BKJD
Rp/R* = 0.0152 [0.0005]
a/R* = 1.37 [0.05]
b = 0.98 [0.00]
Seff = 71.31 [26.55]
Teq = 741 [69] K
Rp = 1.56 [0.42] Re
a = 0.0982 [0.0231] AU
Ag = 41.84 [22.12] [1.85σ]
Teffp = 2914 [300] K [7.07σ]

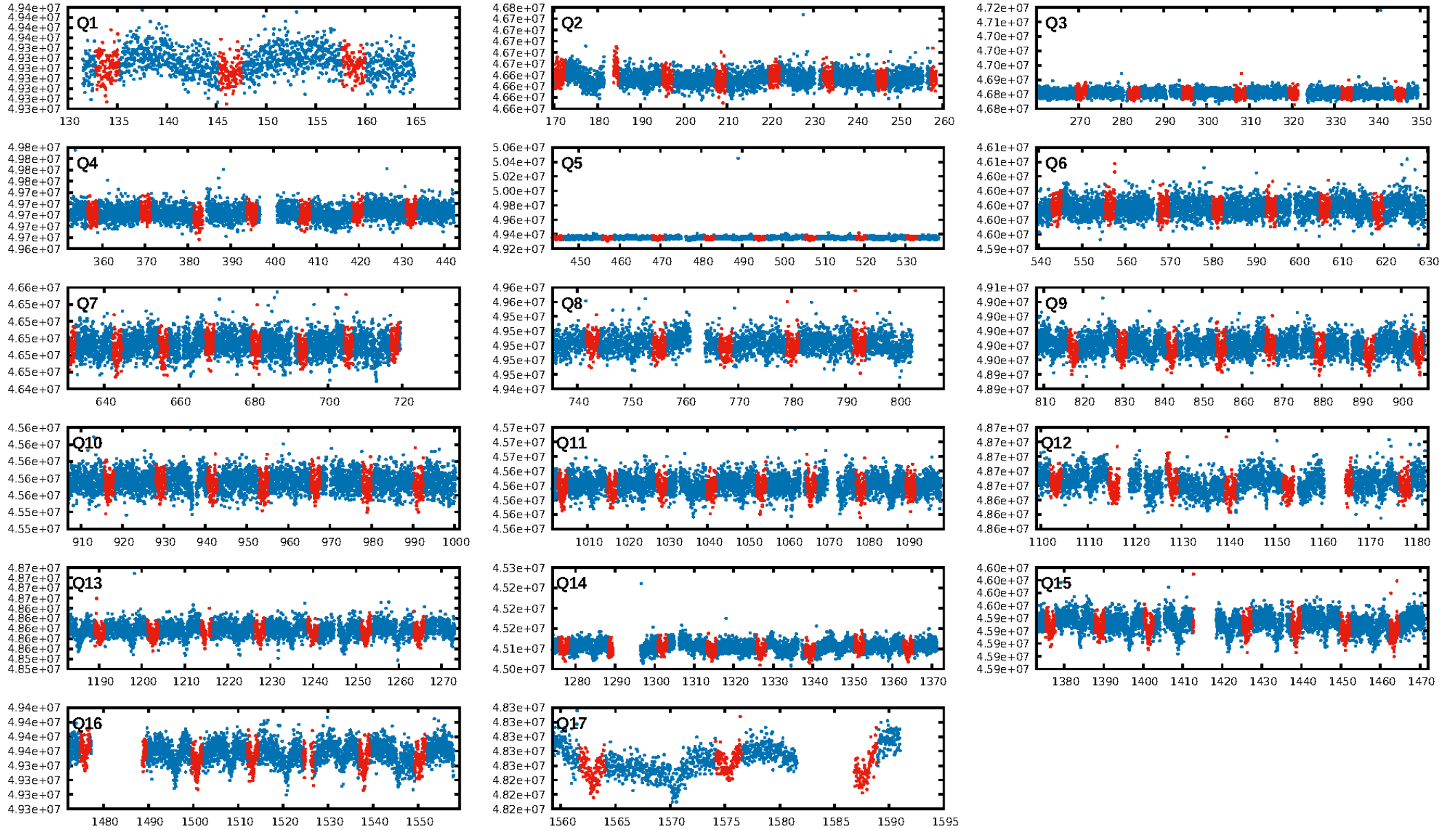
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.01e-79
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: -0.09472
Centroid-sig: 0.0%
Centroid-so: 2.663 arcsec [5.58σ]
OotOffset-rm: 0.541 arcsec [0.82σ]
KicOffset-rm: 0.260 arcsec [0.42σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.12 [2/17]
DiffImageOverlap-fno: 1.00 [17/17]

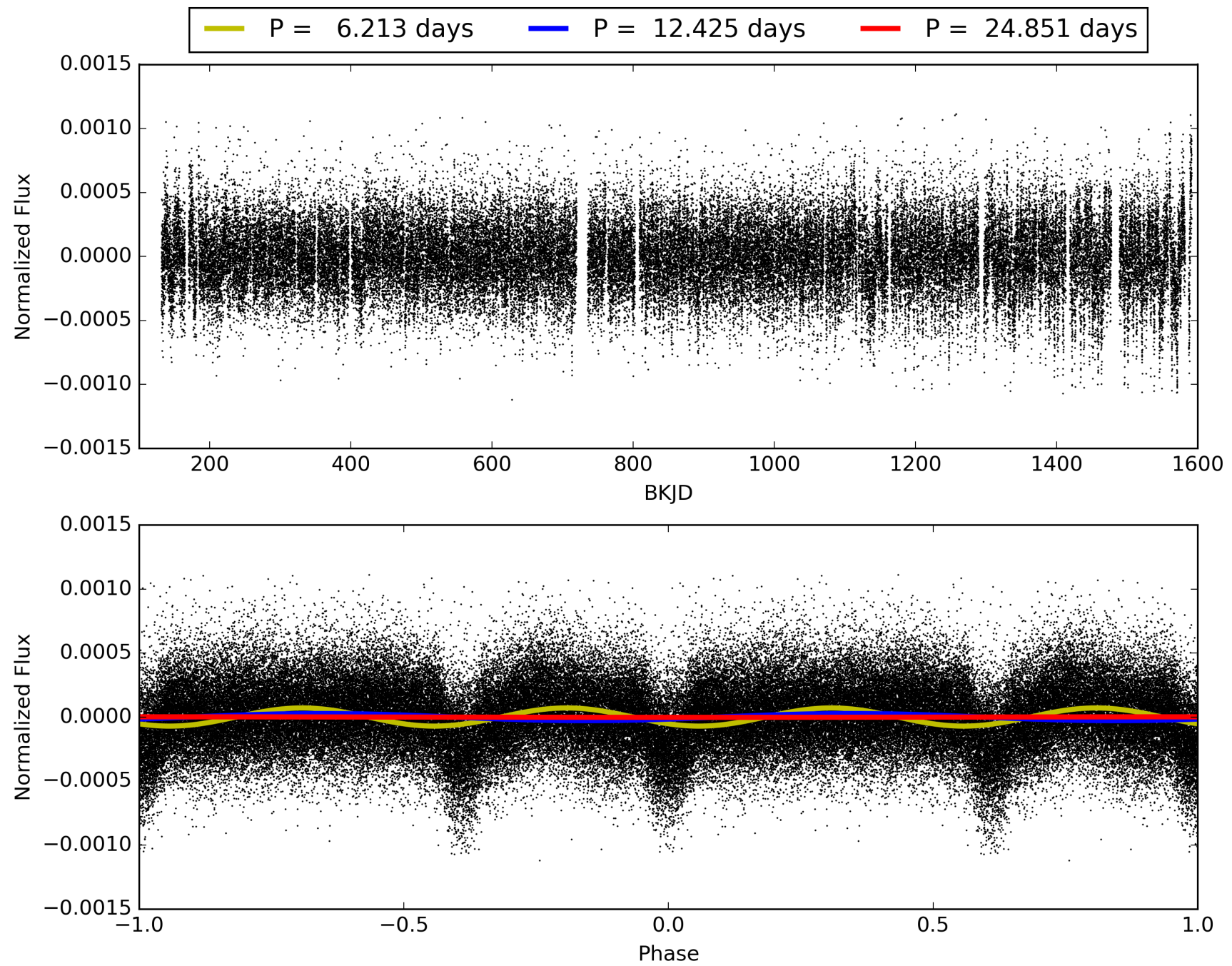
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:35:29 Z

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

TCE 005385439-02, PDC Light Curves

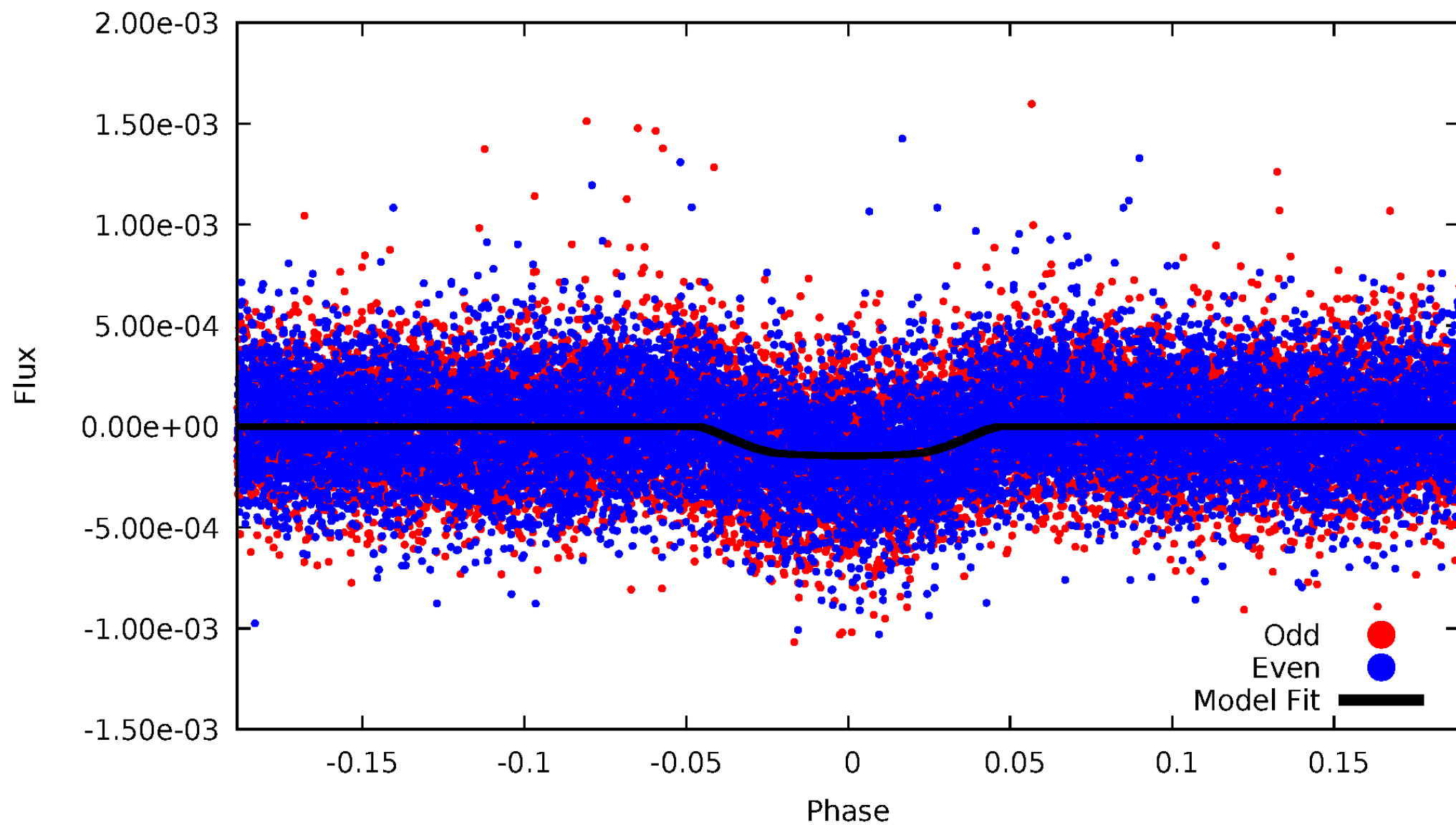


TCE 005385439-02



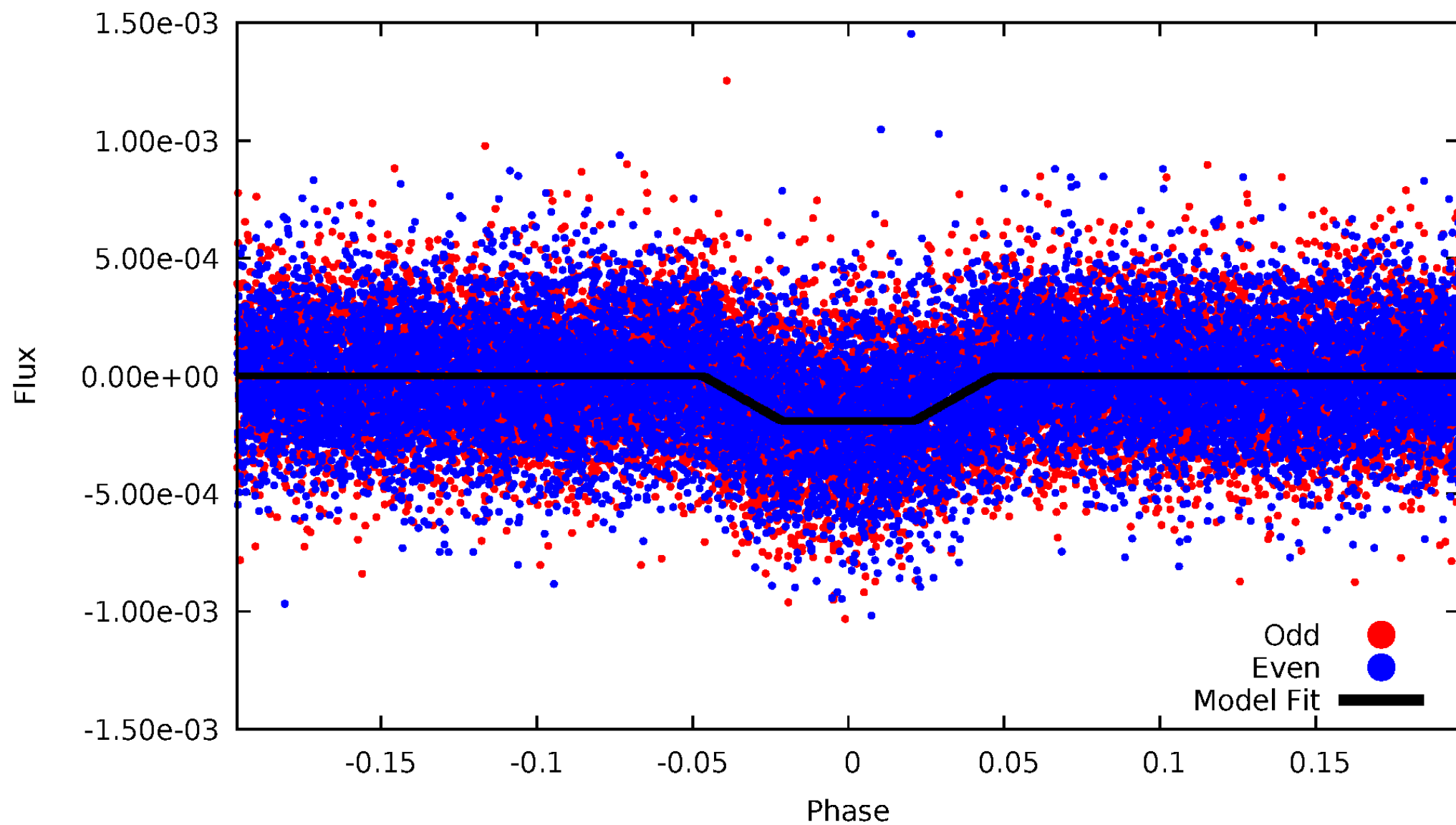
DV Odd/Even

TCE 005385439-02



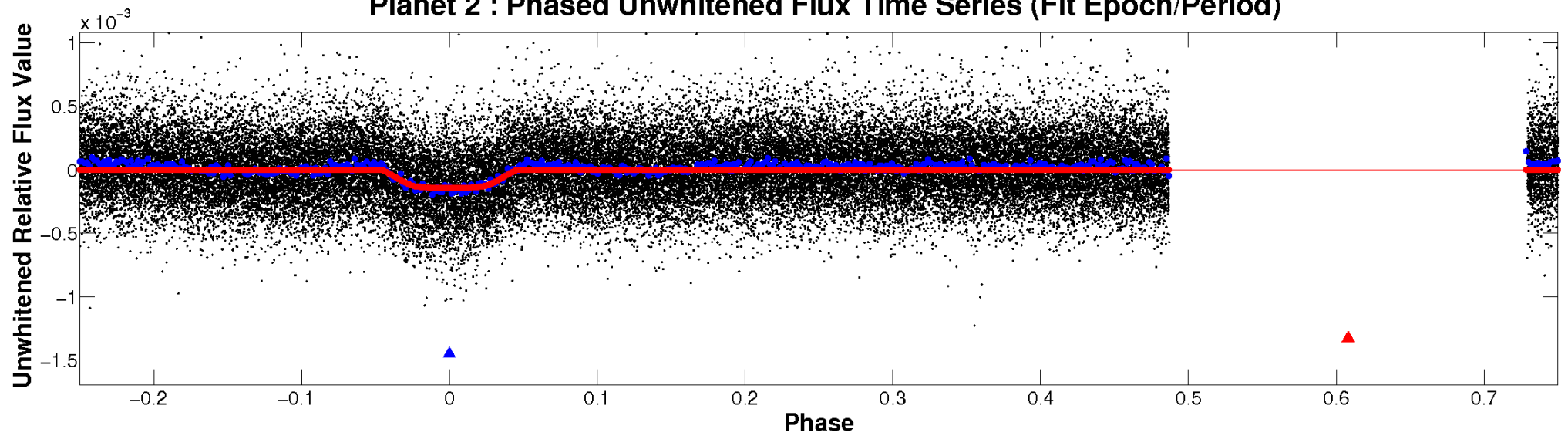
ALT Odd/Even

TCE 005385439-02

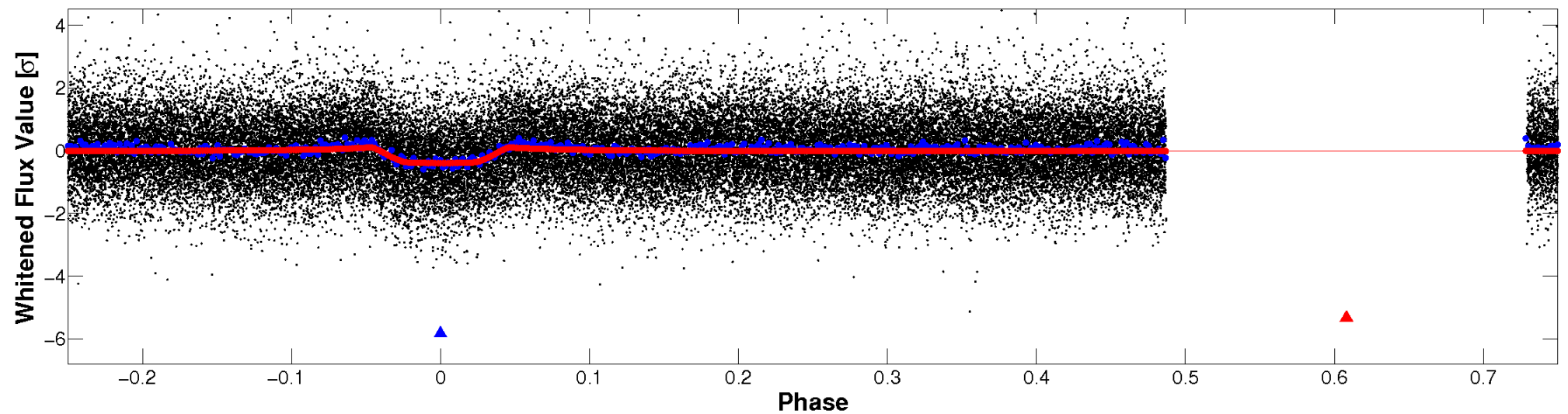


Non-Whitened Vs. Whitened Light Curve

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

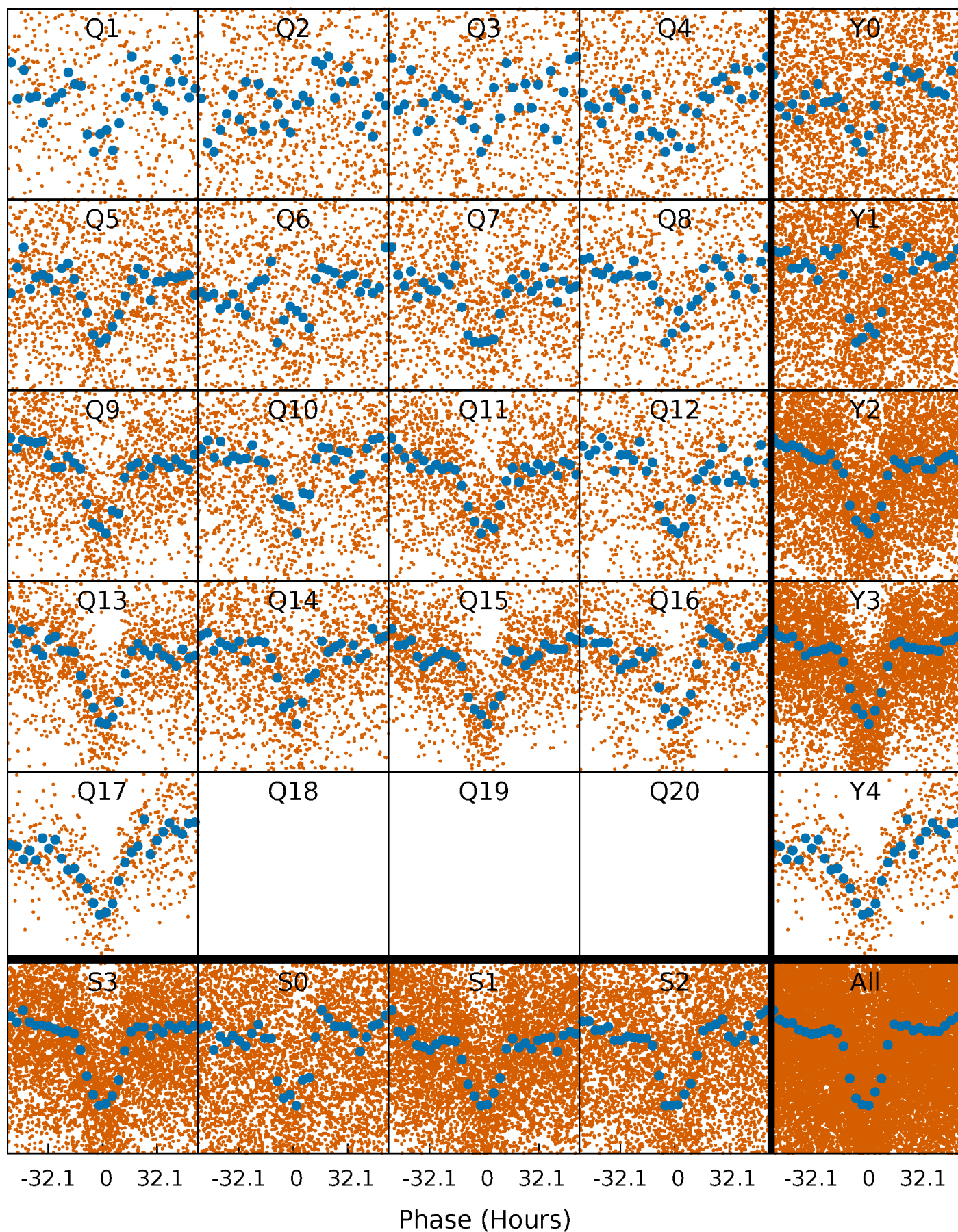


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



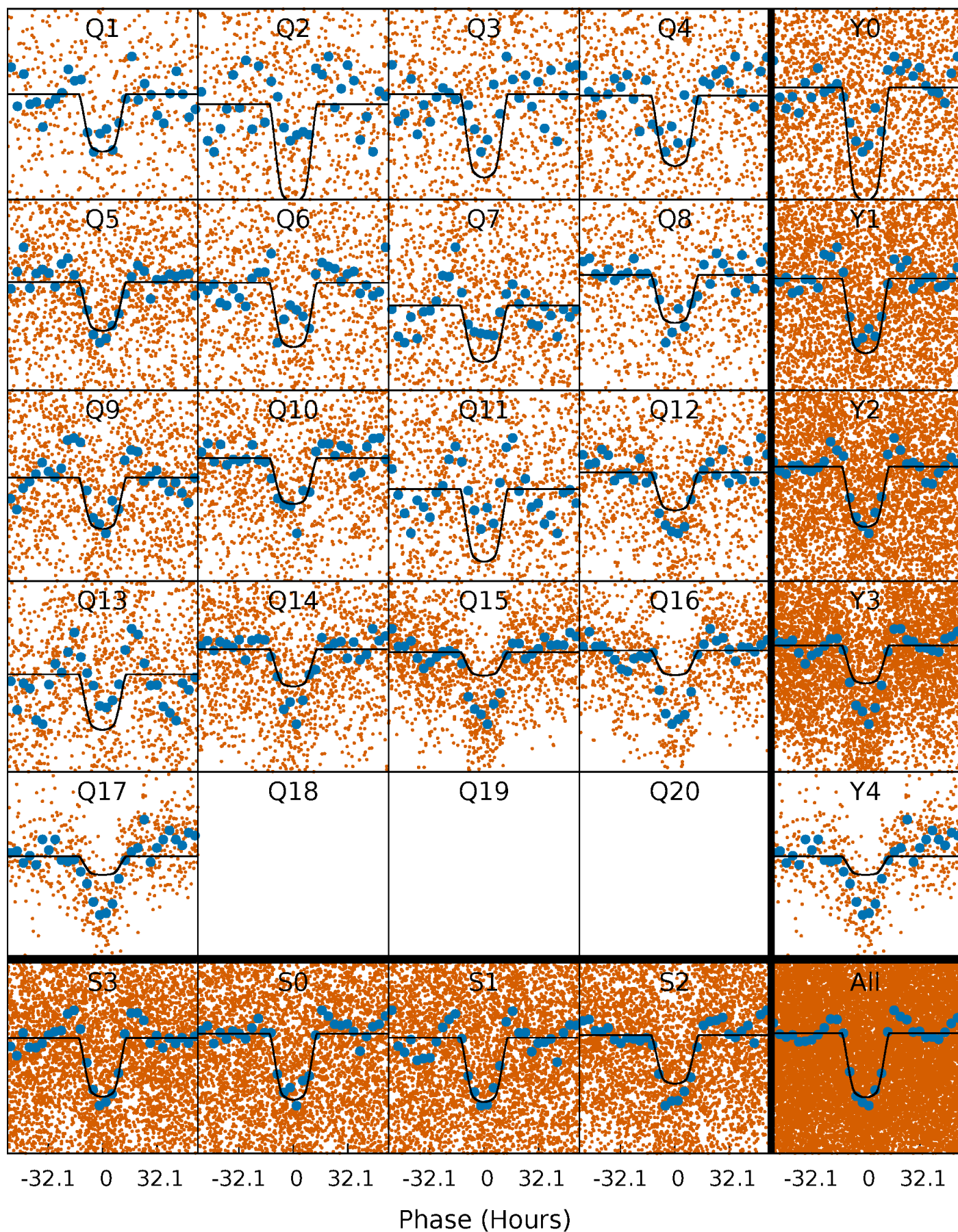
PDC Quarter-Phased Transit Curves

TCE 005385439-02 P= 12.425306 Days $T_0=133.978346$ (BKJD)



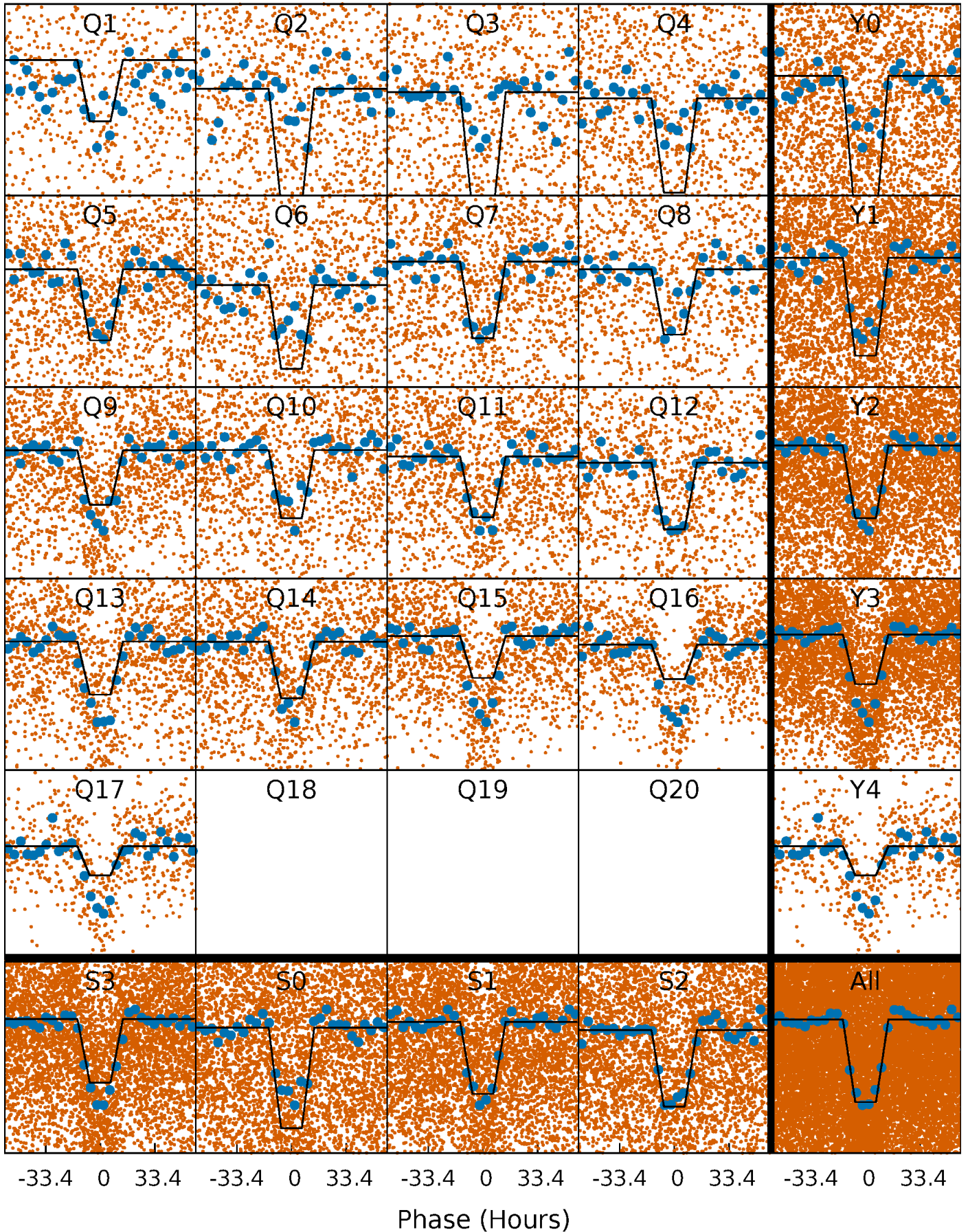
DV Quarter-Phased Transit Curves

TCE 005385439-02 P= 12.425306 Days $T_0=133.978346$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

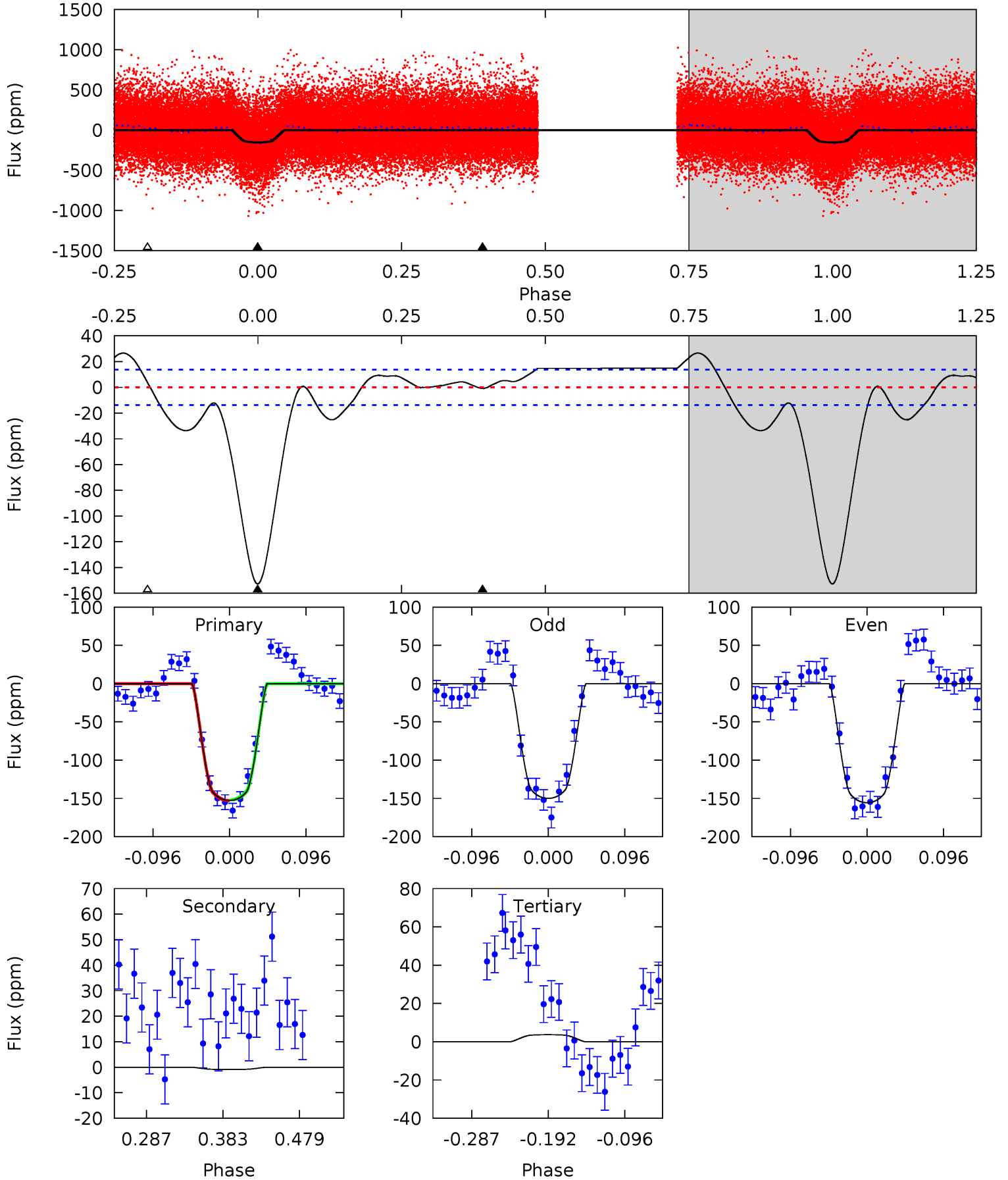
TCE 005385439-02 P= 12.426067 Days $T_0=133.924417$ (BKJD)



DV Model-Shift Uniqueness Test

005385439-02, P = 12.425306 Days, E = 121.553040 Days

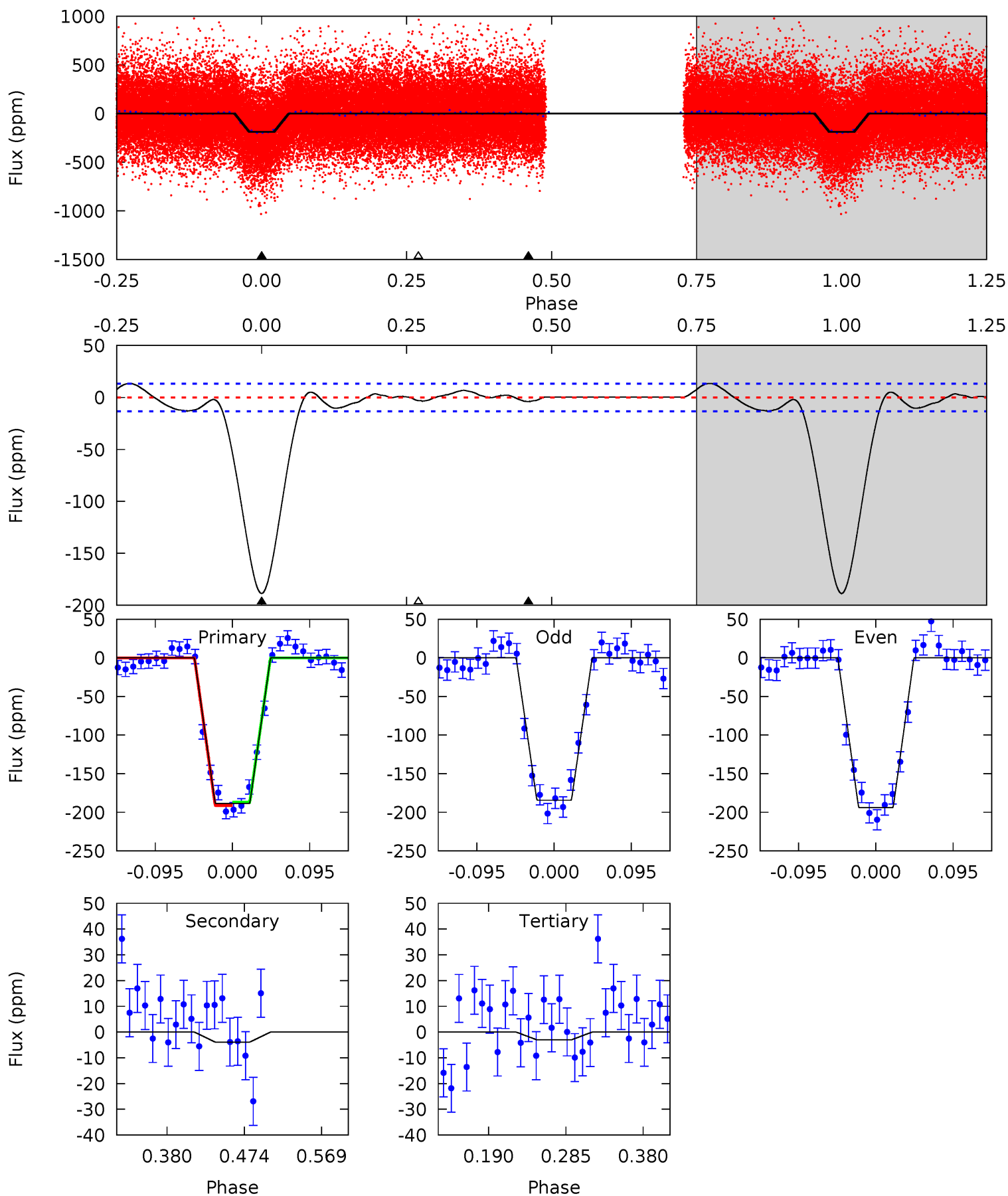
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
50.8	0.29	-1.23	0	4.57	1.67	6.01	52.0	50.8	1.52	0.29	0.94	0.92	0.15	0.14



Alt Model-Shift Uniqueness Test

005385439-02, P = 12.426067 Days, E = 121.498350 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.7	1.34	1.04	0	4.58	1.67	2.36	63.6	64.7	0.30	1.34	1.62	1.04	0.07	0.74



Stellar Parameters For KIC 005385439

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5428^{+161}_{-145}	$4.404^{+0.144}_{-0.198}$	$-0.100^{+0.300}_{-0.300}$	$0.940^{+0.253}_{-0.148}$	$0.816^{+0.119}_{-0.060}$	$1.385^{+0.895}_{-0.695}$
	+3%/-3%	+3%/-4%	+300%/-300%	+27%/-16%	+15%/-7%	+65%/-50%
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 005385439-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1 ± 3	$1.57^{+0.27}_{-0.15}$	1041^{+75}_{-63}	2273^{+438}_{-4806}	$2.223^{+5.977}_{-6.486}$
Alt.	-4 ± 3	$1.43^{+0.24}_{-0.14}$	1042^{+77}_{-61}	2760^{+236}_{-479}	$9.191^{+8.516}_{-6.996}$

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 $A_{obs} \gg 1.0$

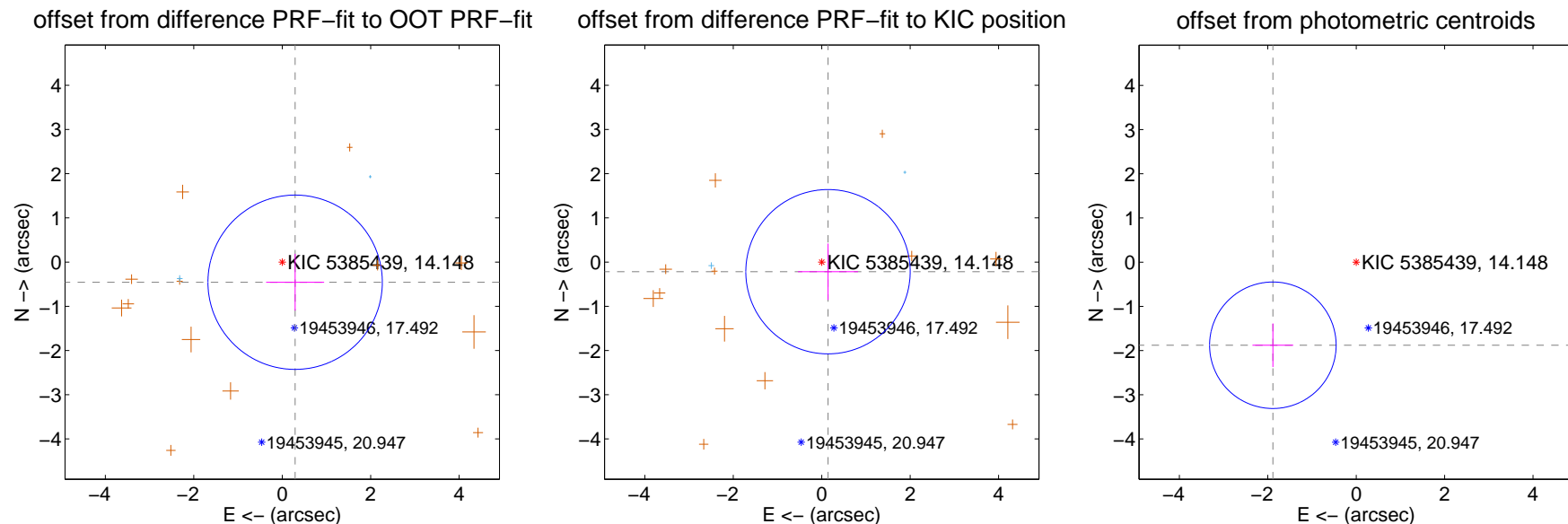
DV Centroid Data

Supplemental centroid analysis for 005385439-02. Kepler magnitude: 14.15. Transit SNR 24.86

There are 2 quarters with good PRF difference image offsets

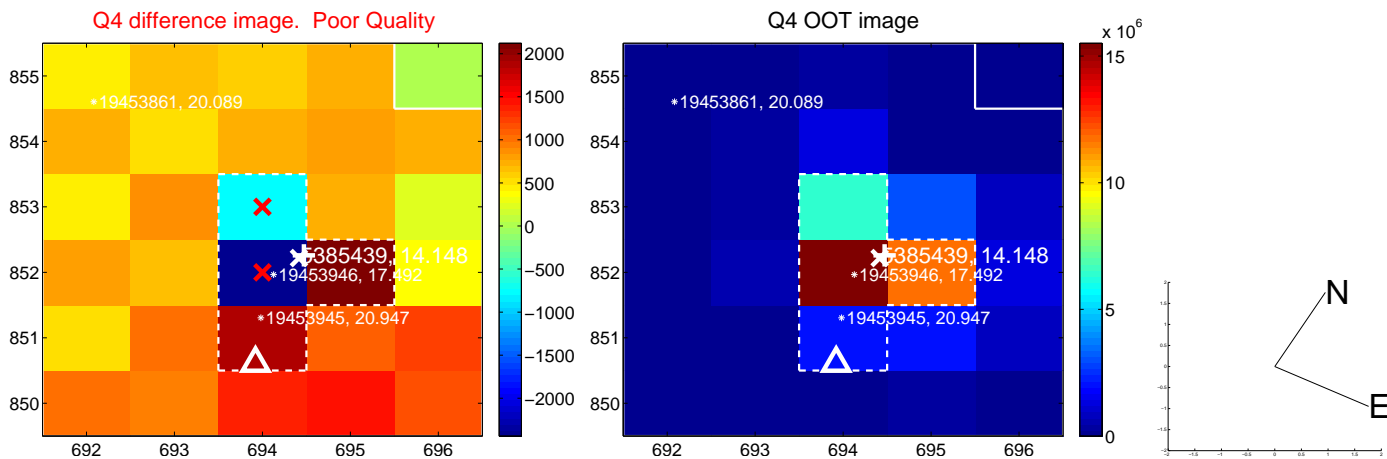
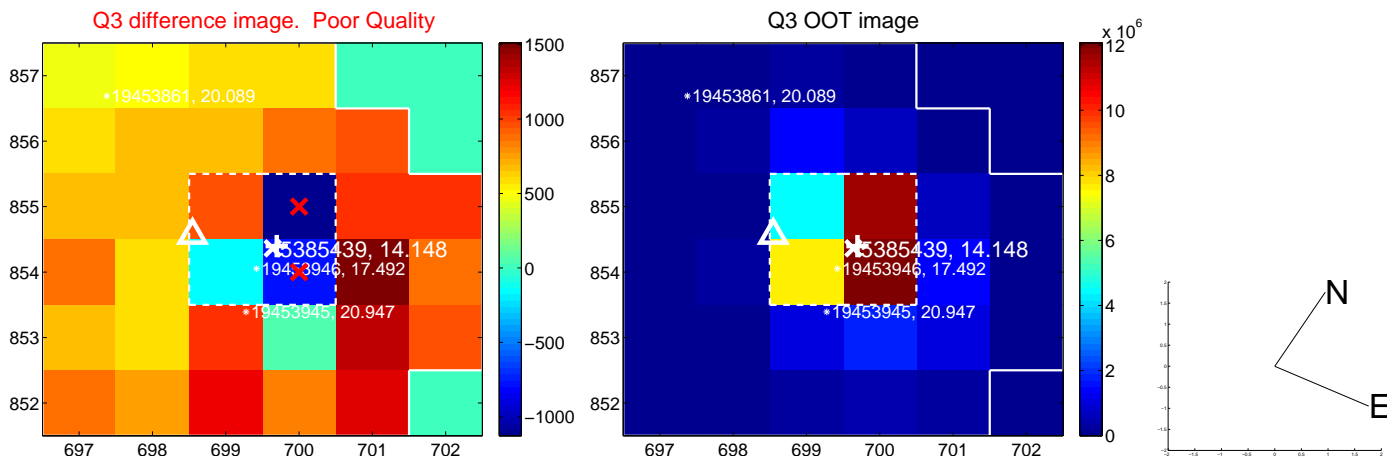
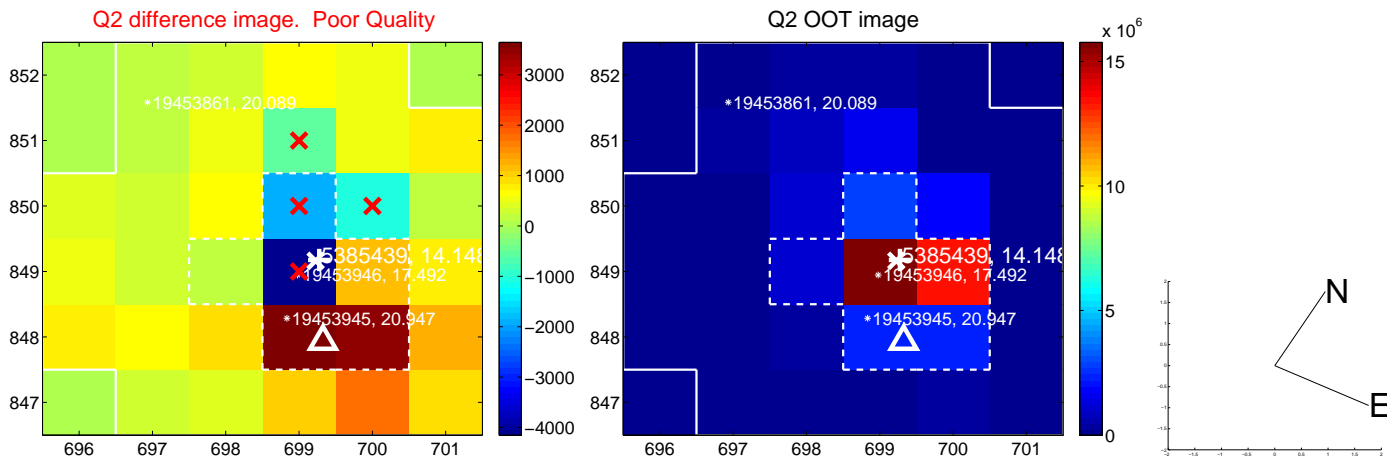
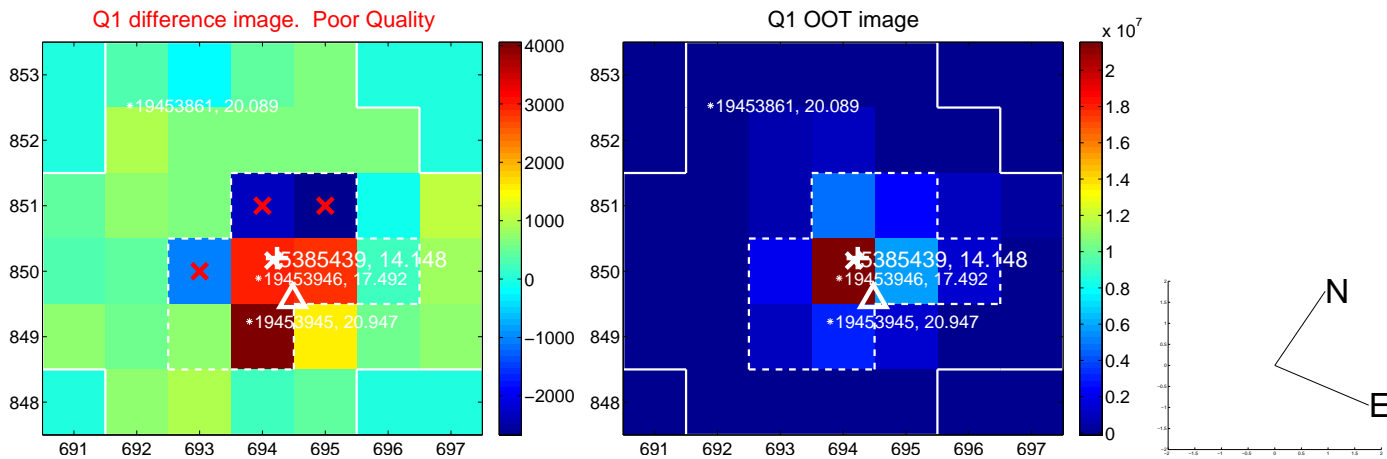
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.541 ± 0.657	0.82	-0.292 ± 0.656	-0.456 ± 0.643
PRF-fit source offset from KIC position	0.260 ± 0.620	0.42	-0.142 ± 0.680	-0.218 ± 0.637
photometric centroid source offset	2.66 ± 0.48	5.58	1.89 ± 0.46	-1.88 ± 0.49

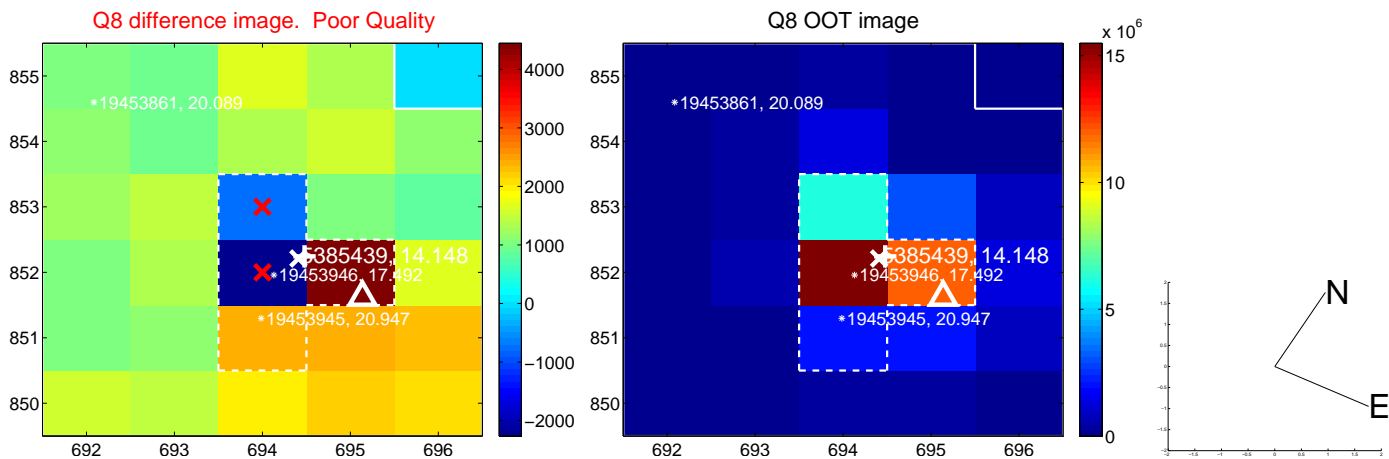
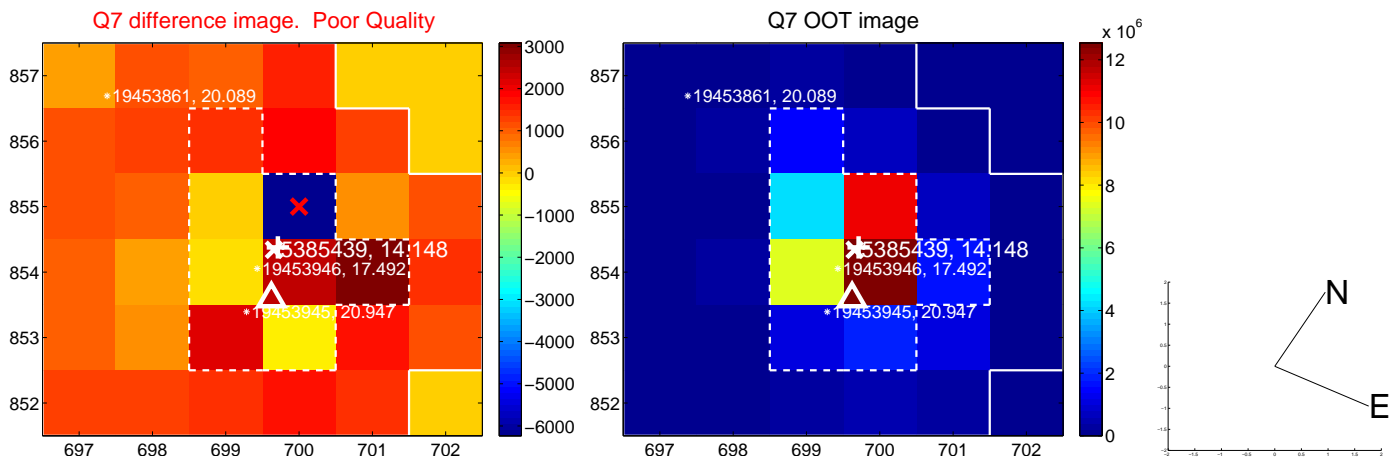
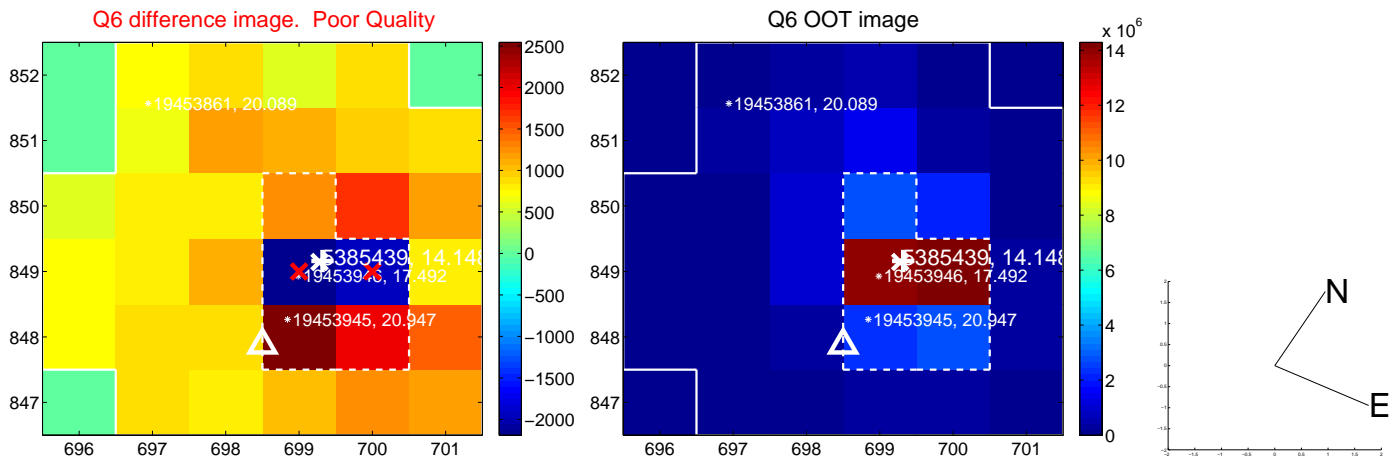
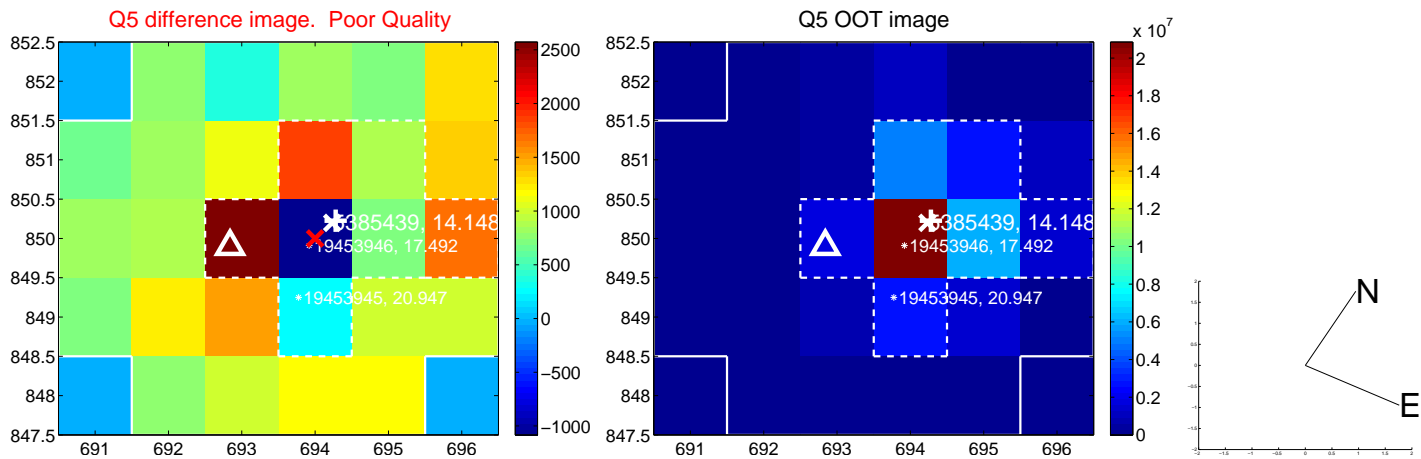


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

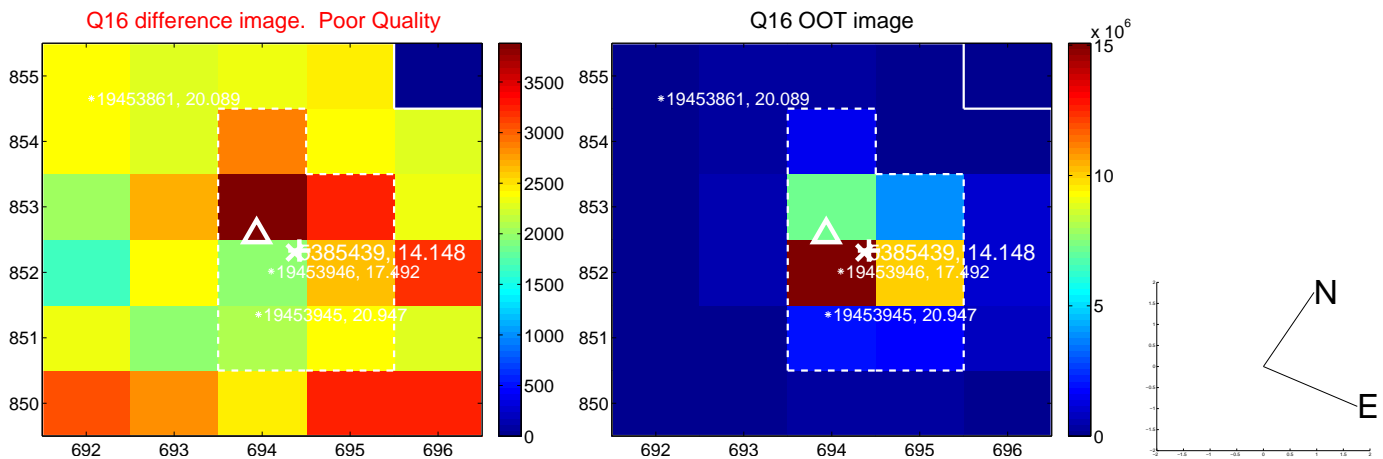
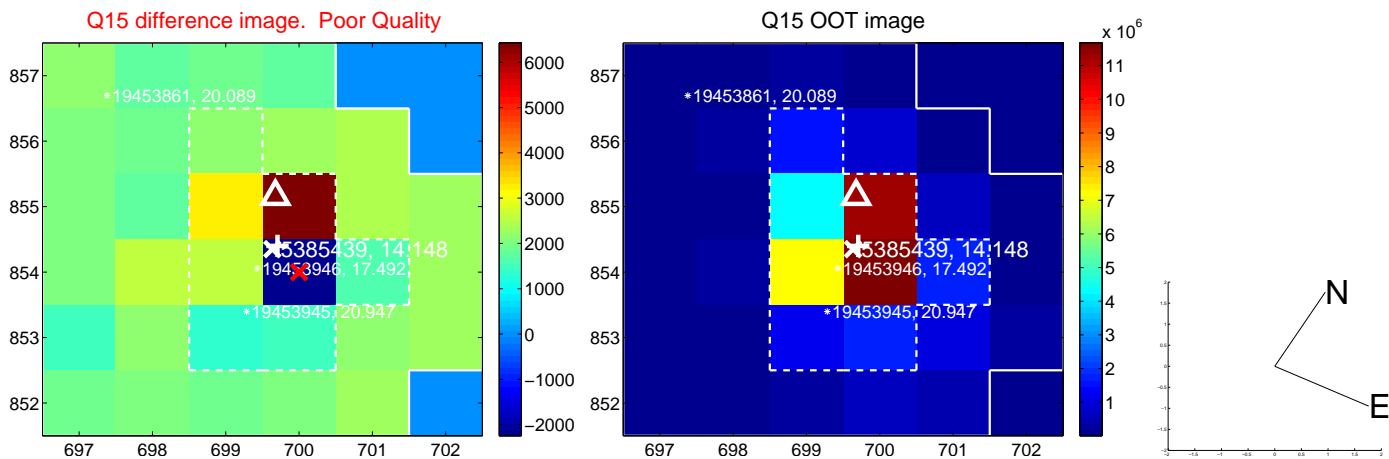
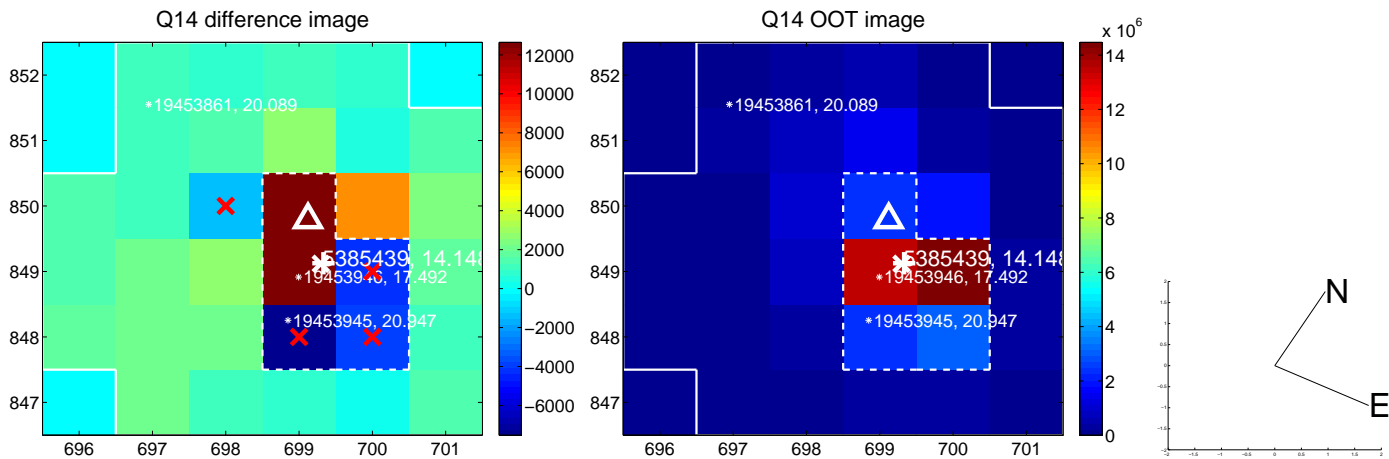
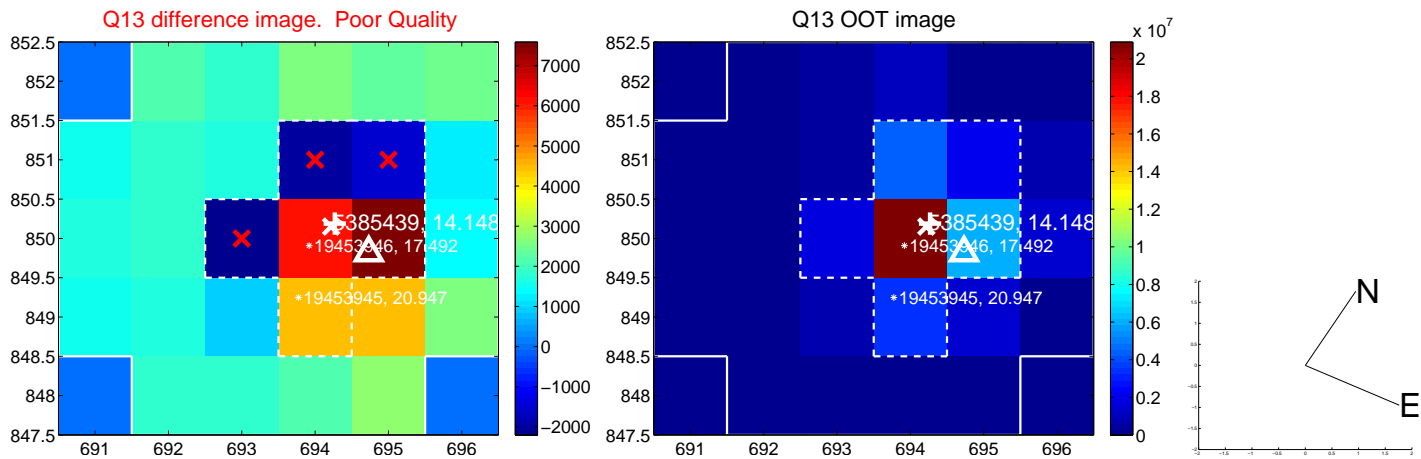
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



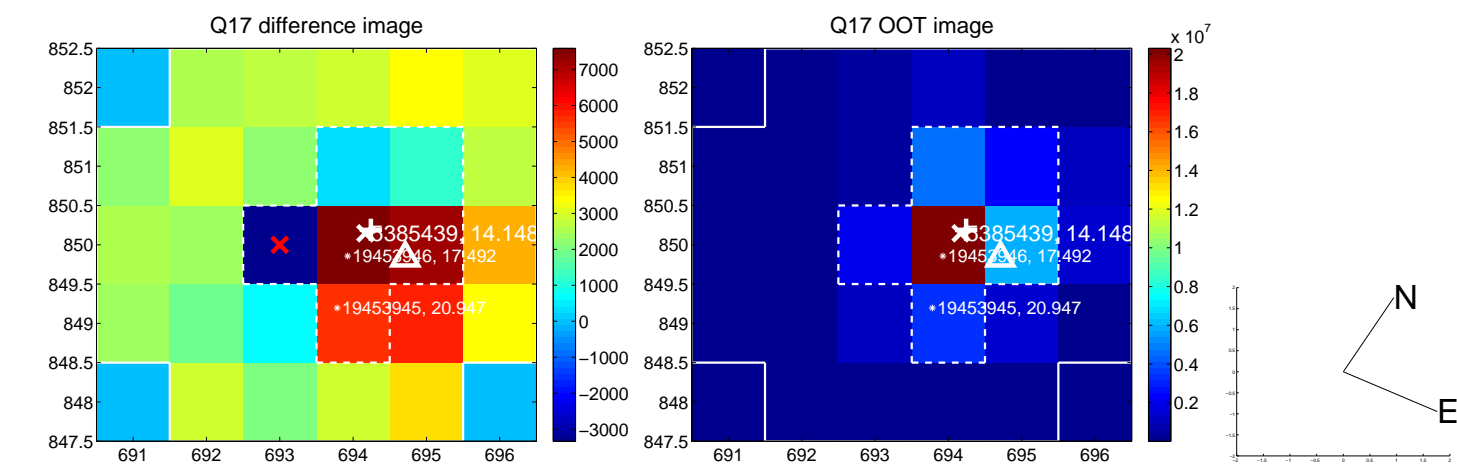
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



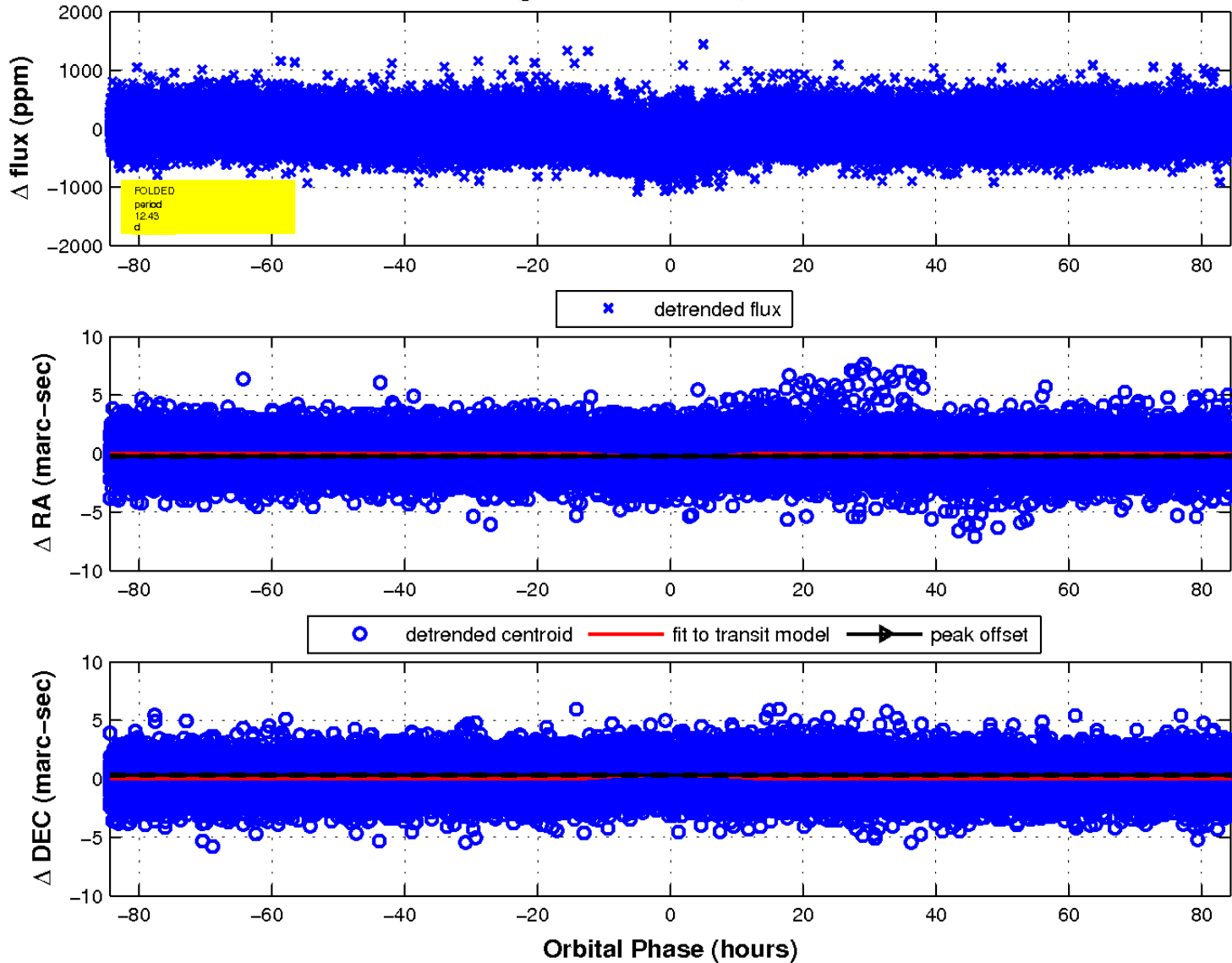
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

