

KIC 005385491

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})
005385491-01	OBS	No	12.425130	141.564324	109.8	24.127	20.3	22.5	1.02	5478	1.50	84.57
005385491-02	OBS	3988.01	12.425731	133.971747	104.7	26.410	18.7	25.2	1.02	5478	1.45	84.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385491-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—HALO_GHOST—EPHEM_MATCH
005385491-02	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 005385491-01

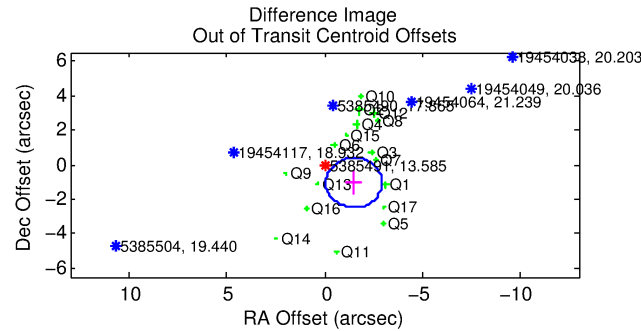
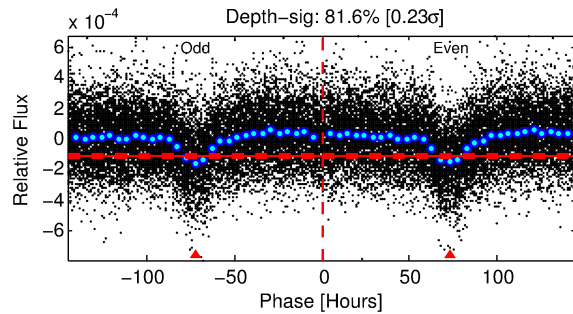
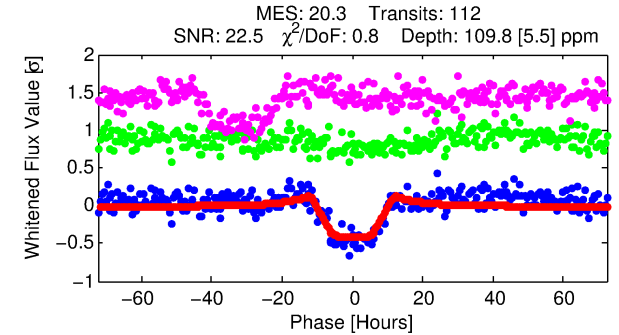
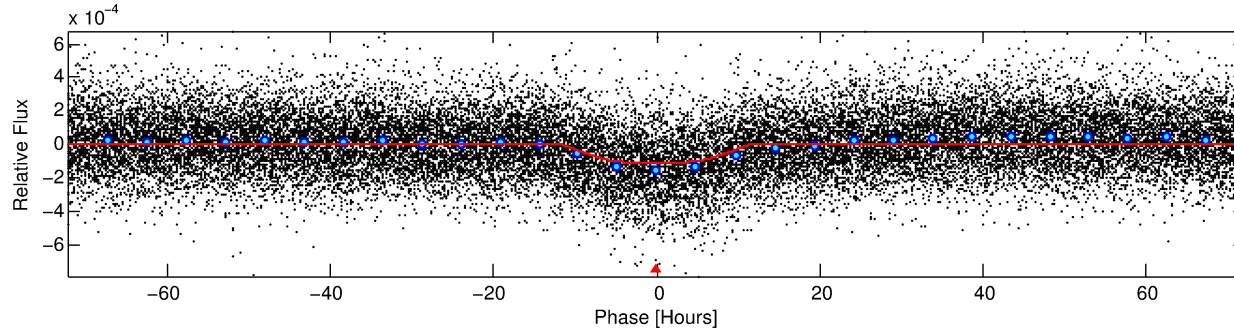
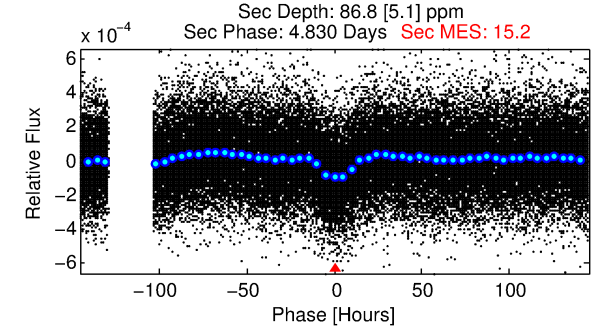
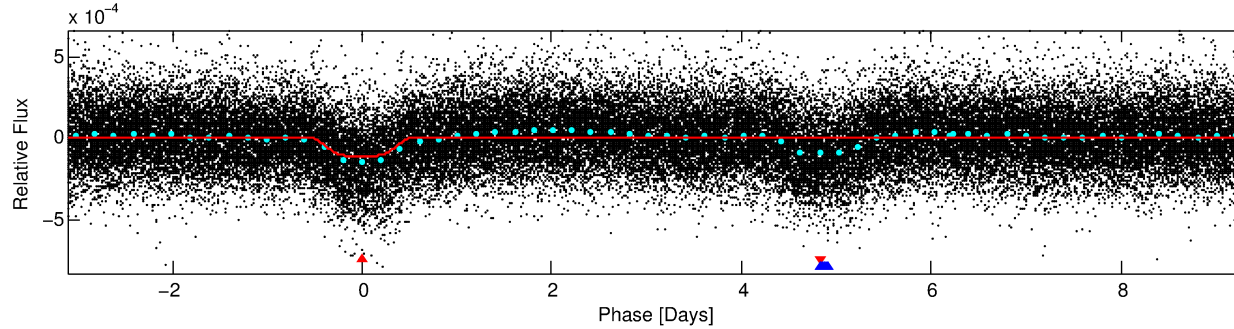
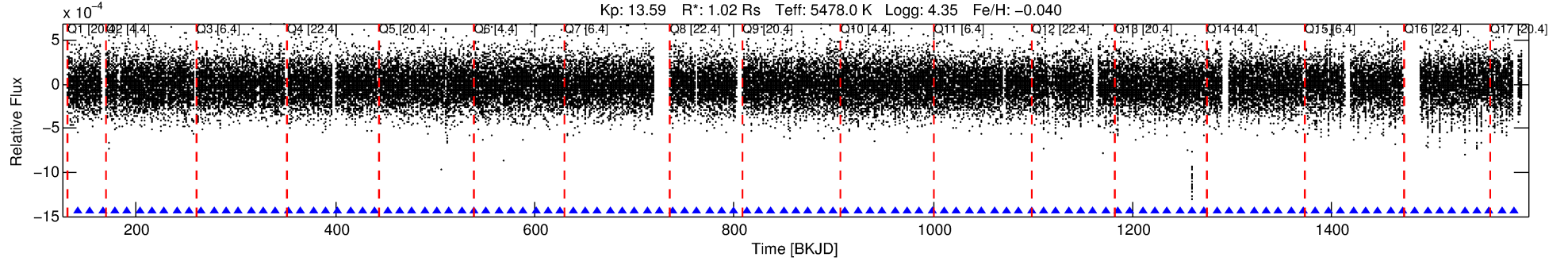
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005385491-01	5385491	V380-Cyg-pri	5385723	1:1	212.2	-14	-51	5.77	13.58	1317.60	Direct-PRF	0	1.69	0.70

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: 5385491 Candidate: 1 of 2 Period: 12.425 d
KOI: K03988 Corr: No Ephemeris Match

Kp: 13.59 R*: 1.02 Rs Teff: 5478.0 K Logg: 4.35 Fe/H: -0.040



DV Fit Results:

Period = 12.42513 [0.00030] d
Epoch = 141.5643 [0.0189] BKJD
Rp/R* = 0.0135 [0.0004]
a/R* = 1.40 [0.05]
b = 0.98 [0.00]
Seff = 84.57 [35.64]
Teff = 773 [81] K
Rp = 1.50 [0.48] Re
a = 0.0993 [0.0270] AU
Ag = 209.03 [86.45] [2.41σ]
Teffp = 4546 [169] K [20.12σ]

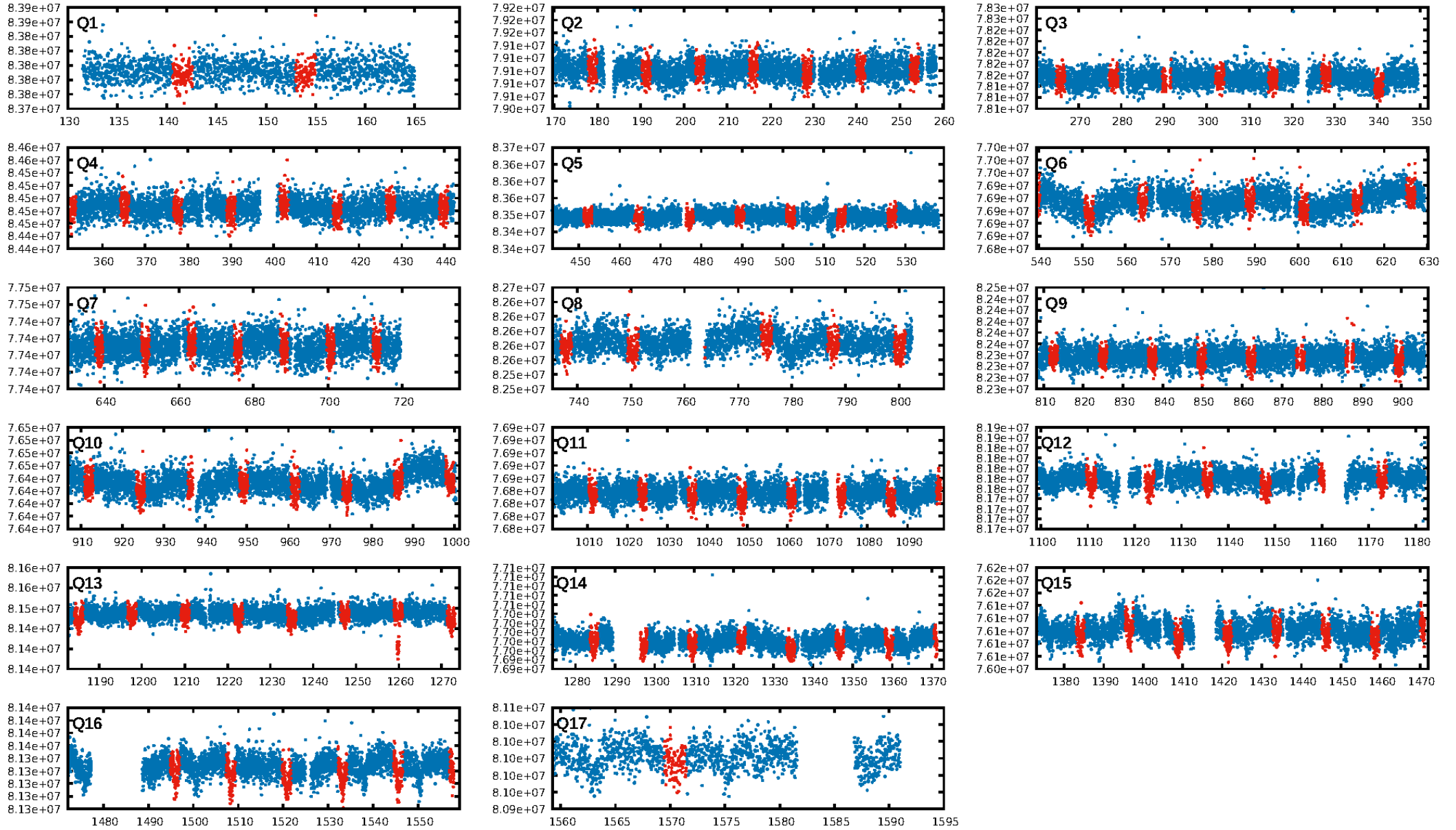
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.25e-98
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: -0.0273
Centroid-sig: 60.5%
Centroid-so: 0.053 arcsec [0.10σ]
OotOffset-rm: 1.818 arcsec [3.79σ]
KicOffset-rm: 1.649 arcsec [3.23σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.53 [9/17]
DiffImageOverlap-fno: 1.00 [17/17]

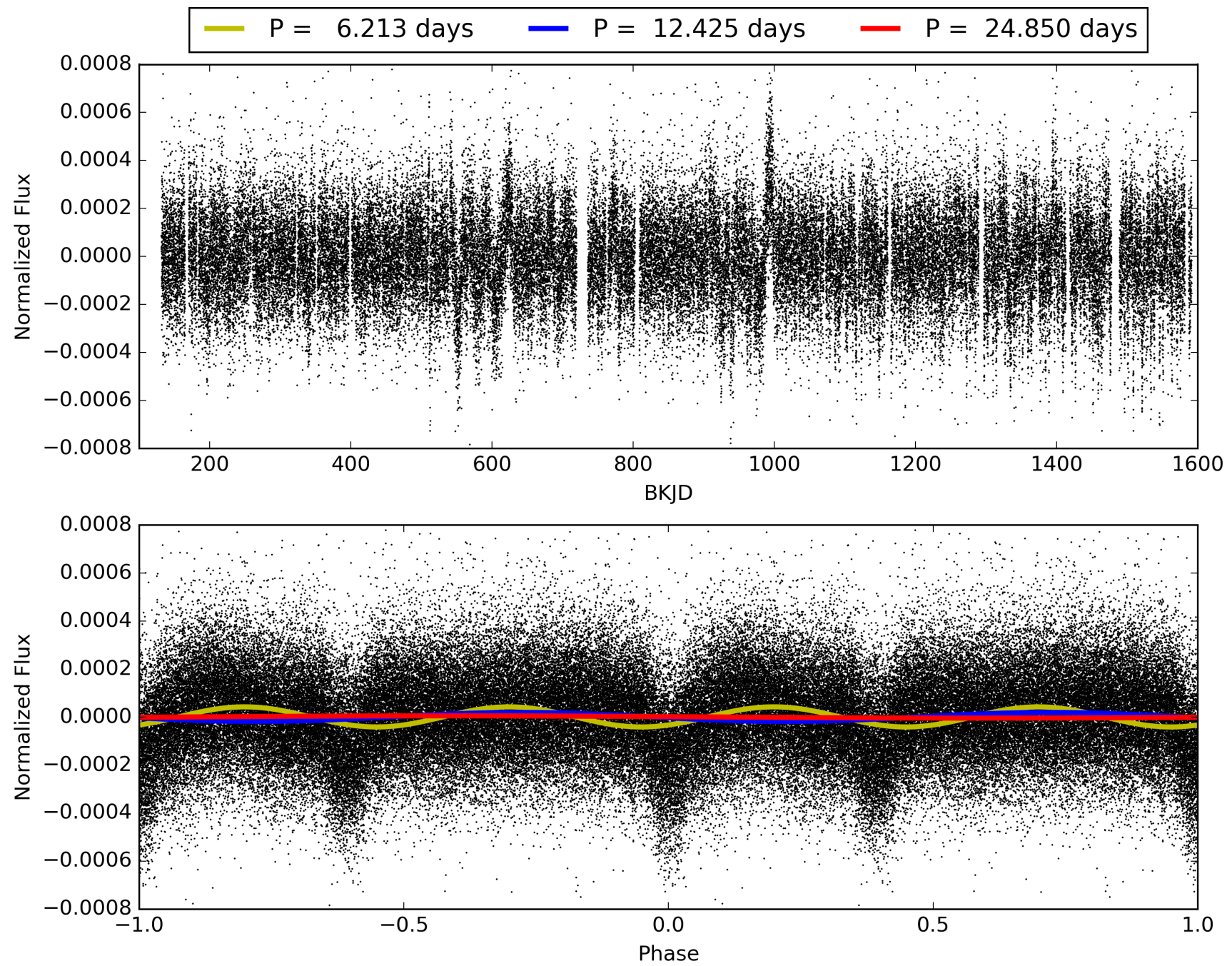
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:28:22 Z

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

TCE 005385491-01, PDC Light Curves

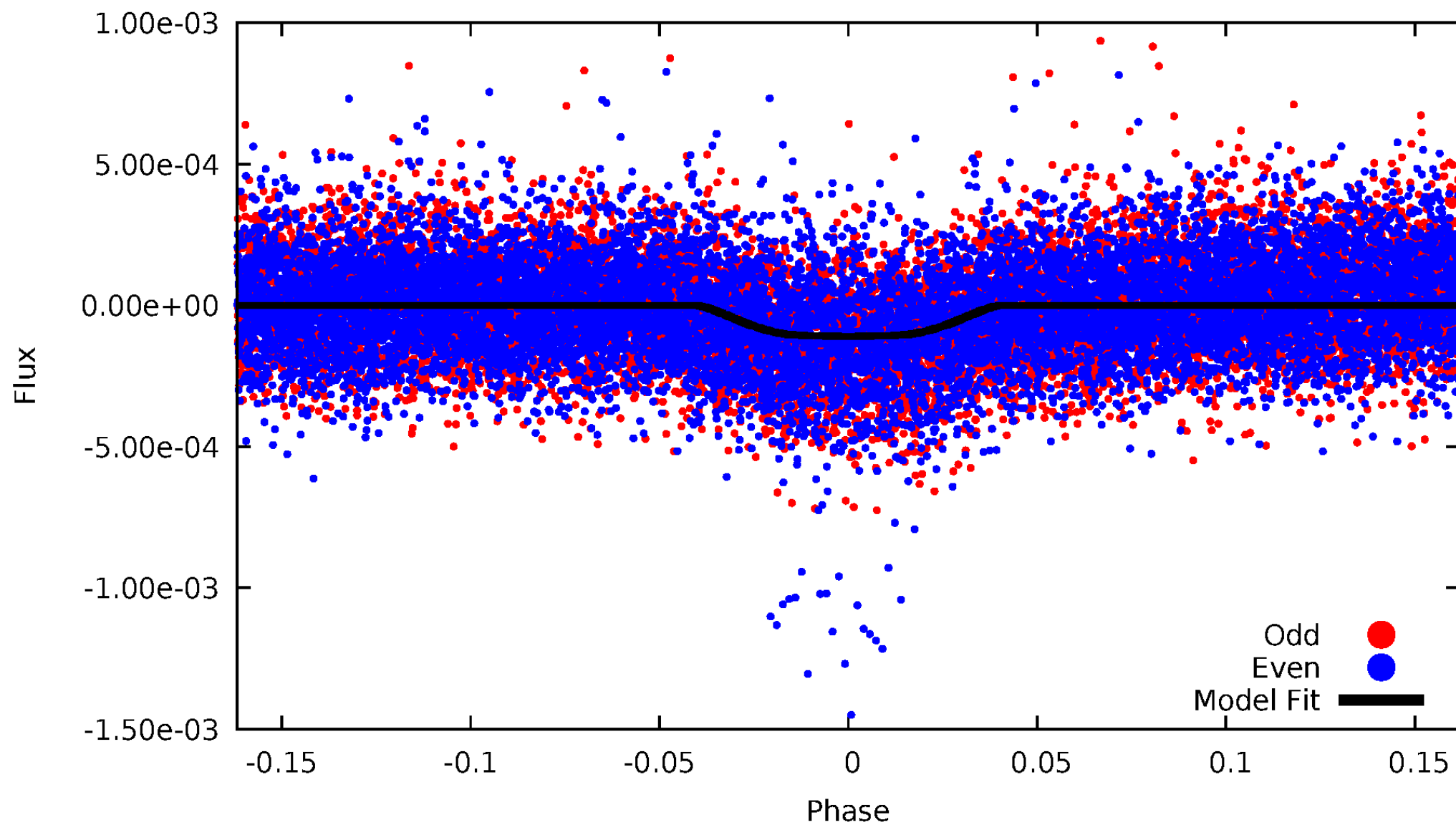


TCE 005385491-01



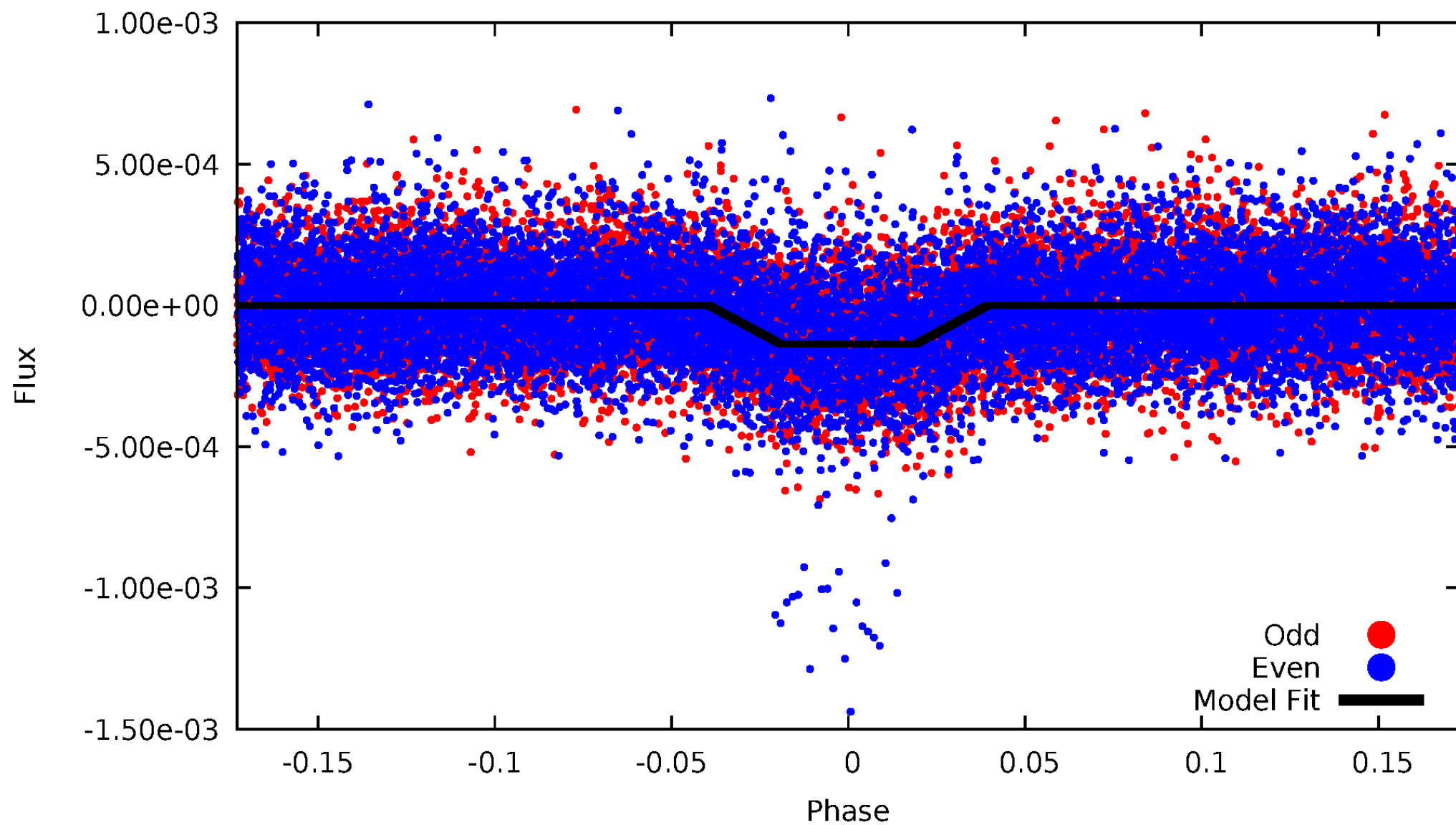
DV Odd/Even

TCE 005385491-01

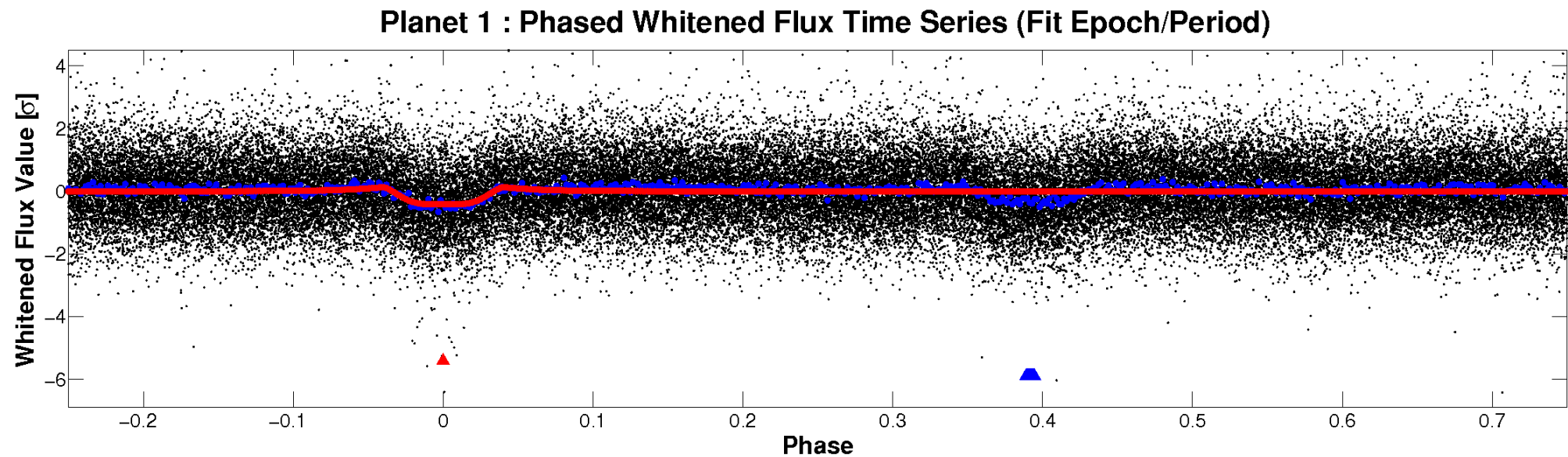
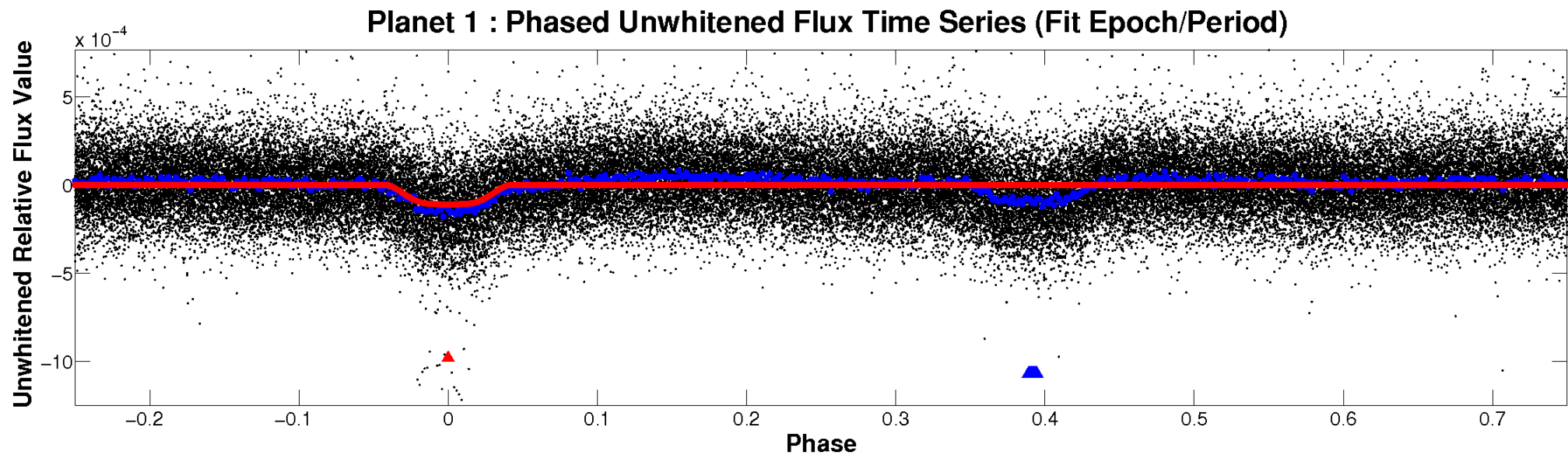


ALT Odd/Even

TCE 005385491-01

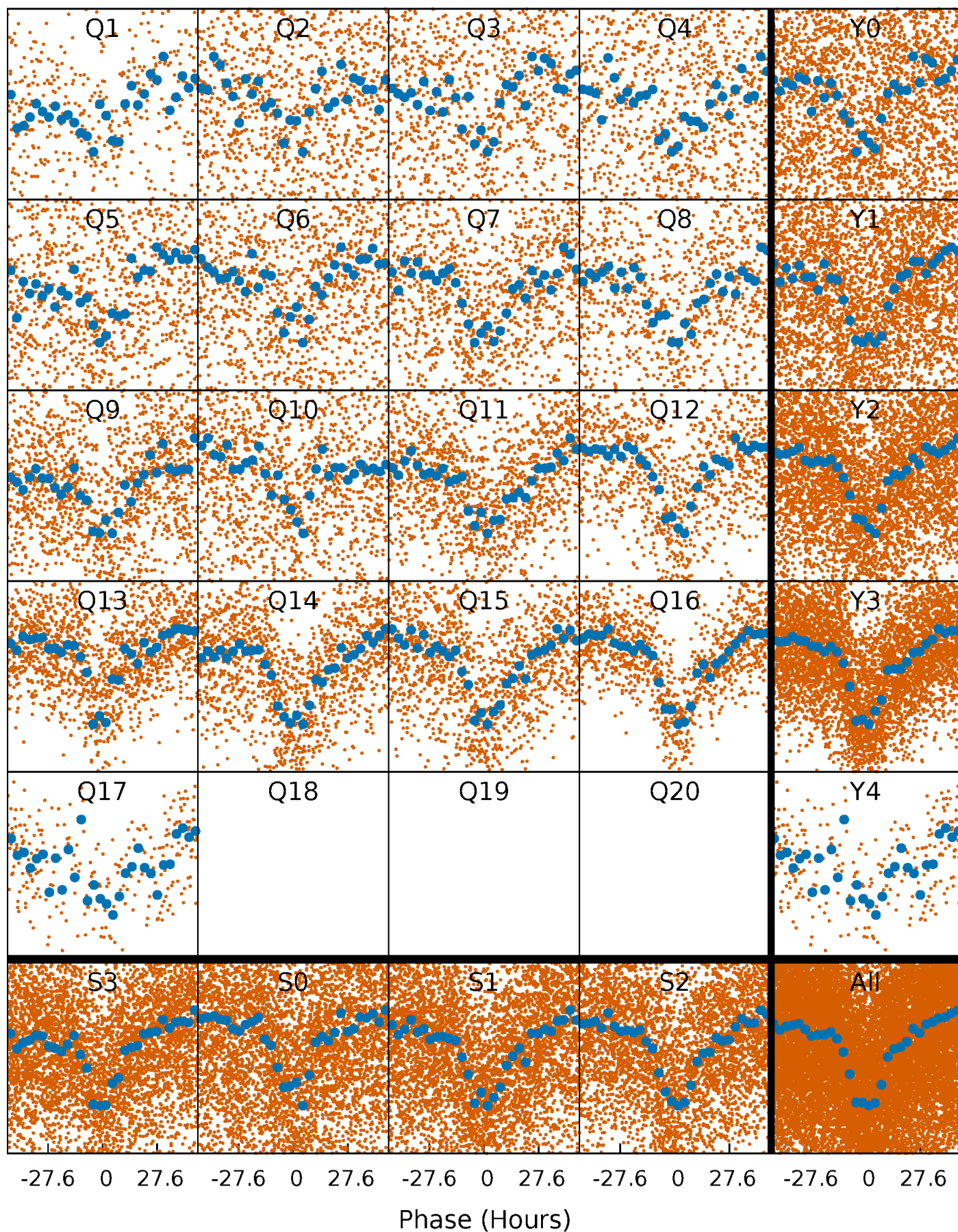


Non-Whitened Vs. Whitened Light Curve



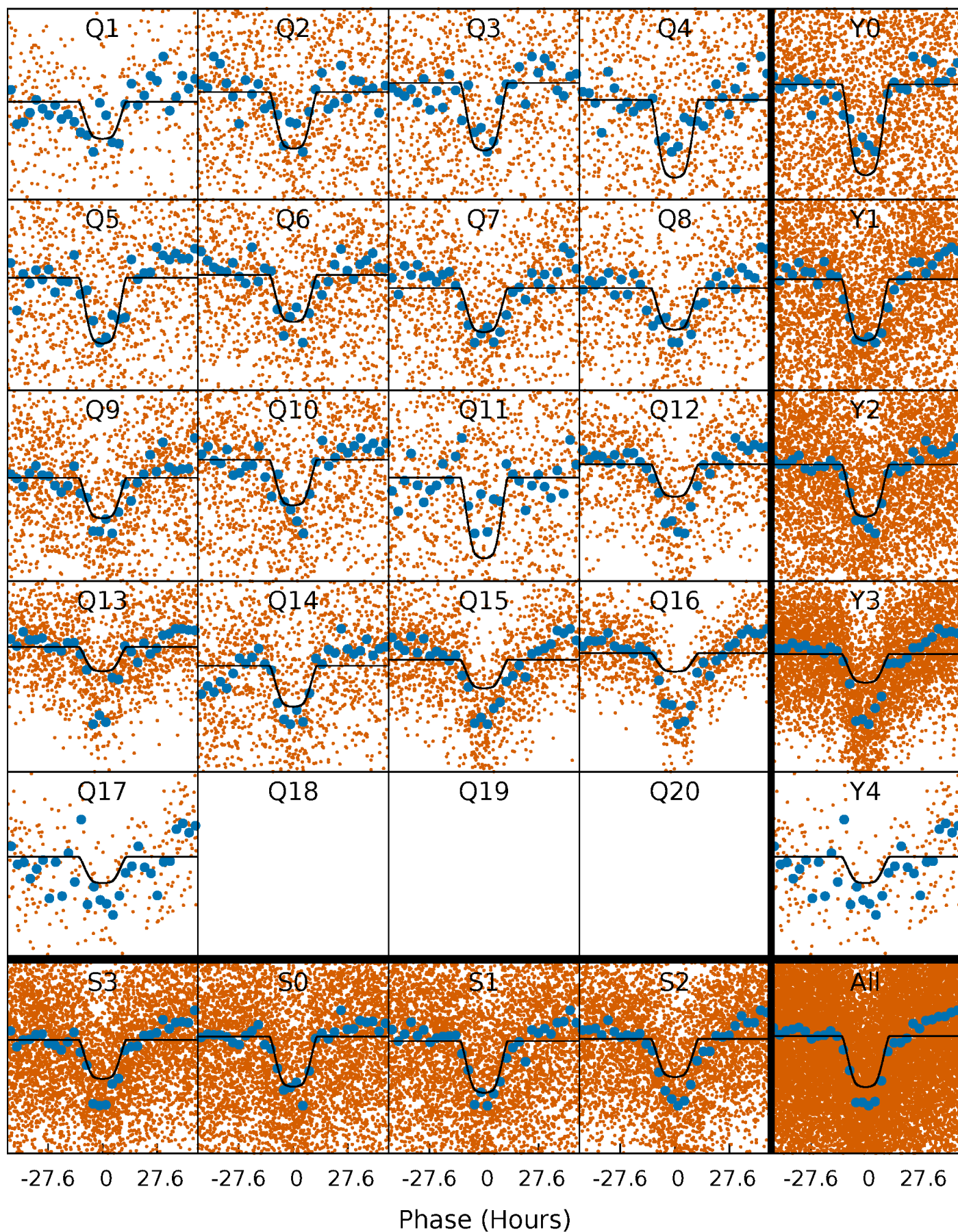
PDC Quarter-Phased Transit Curves

TCE 005385491-01 P= 12.425130 Days $T_0=141.564324$ (BKJD)



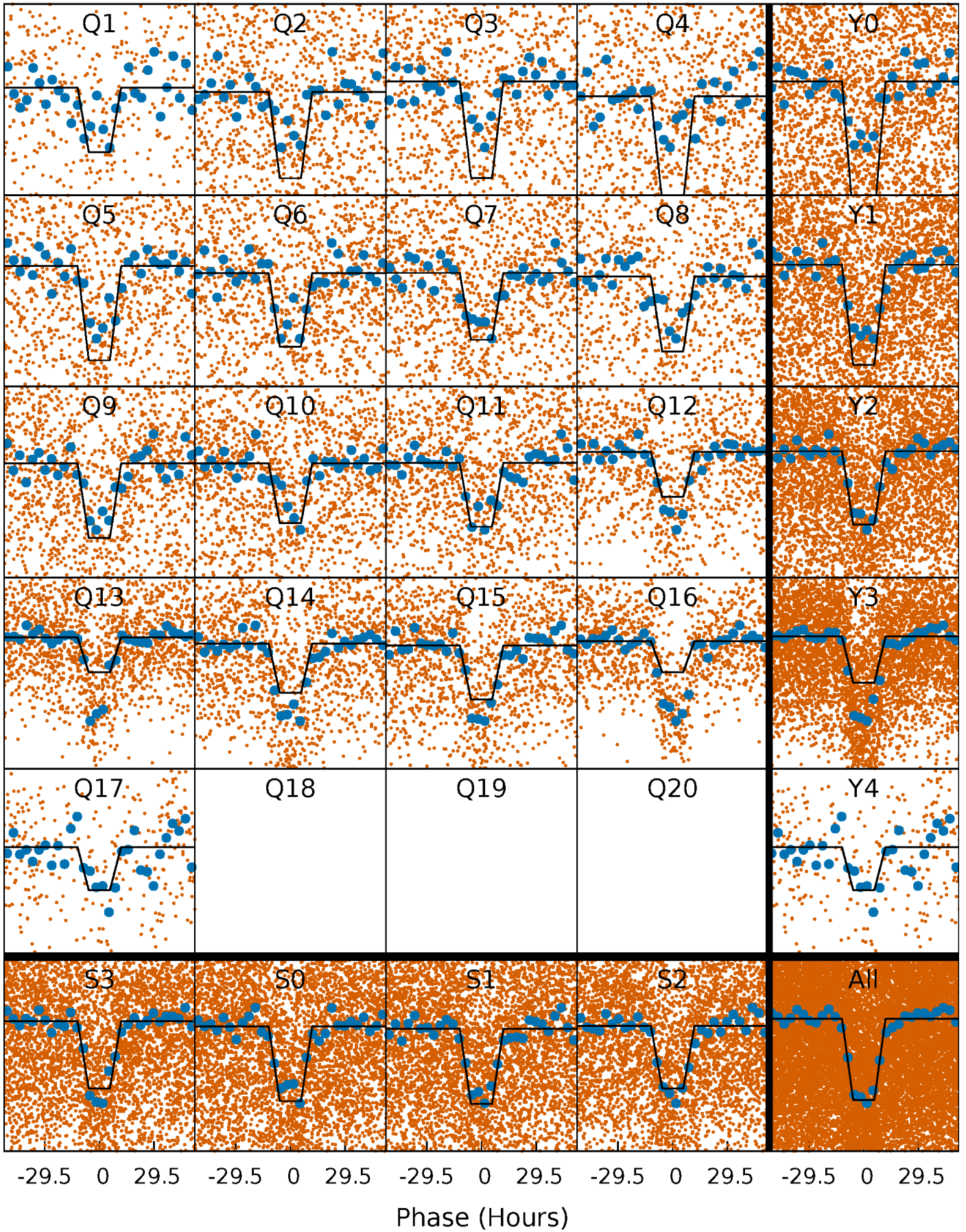
DV Quarter-Phased Transit Curves

TCE 005385491-01 P= 12.425130 Days $T_0=141.564324$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

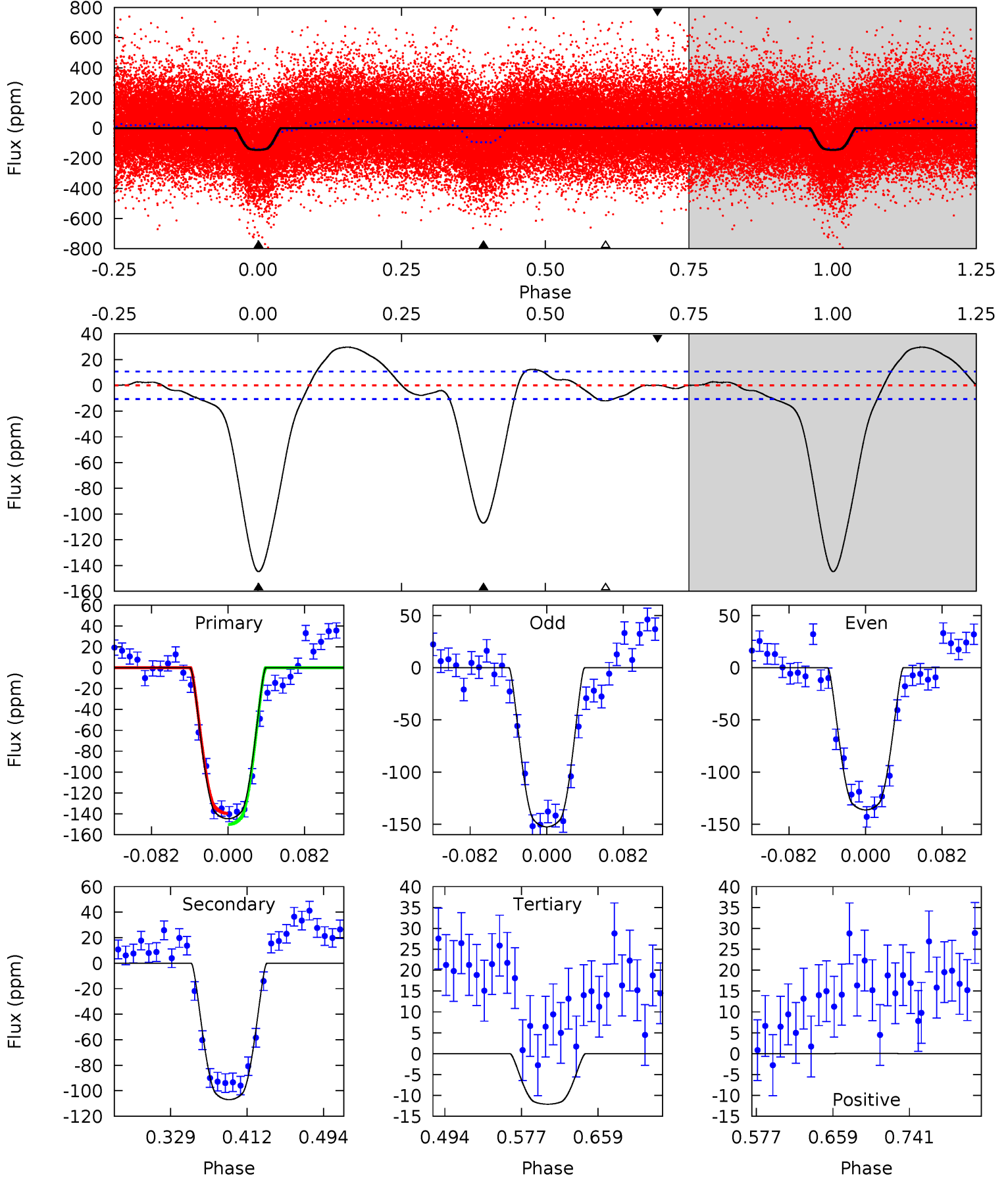
TCE 005385491-01 P= 12.424613 Days $T_0=141.612182$ (BKJD)



DV Model-Shift Uniqueness Test

005385491-01, P = 12.425130 Days, E = 129.139194 Days

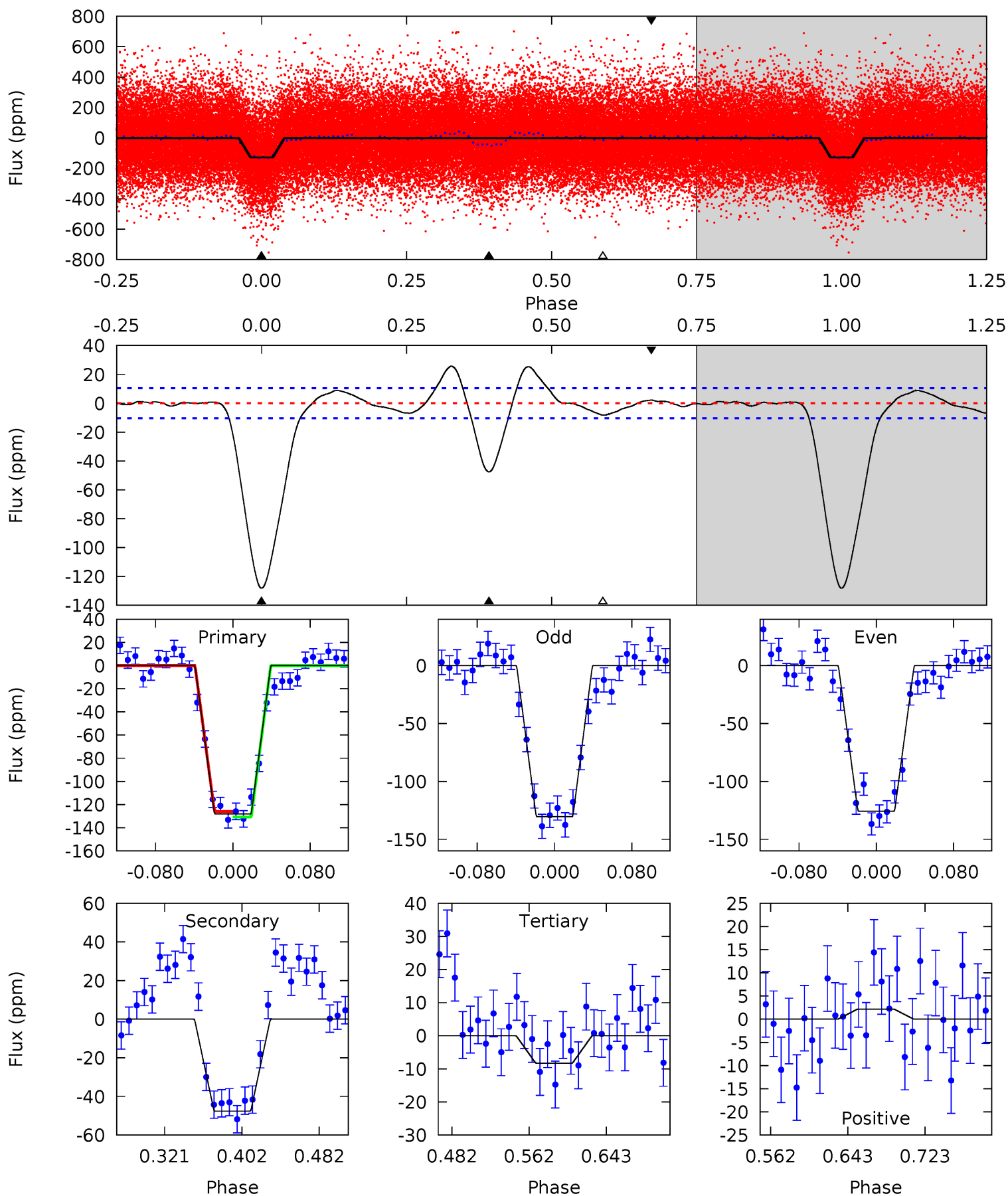
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.3	46.1	5.21	0.03	4.61	1.74	4.92	57.1	62.3	40.9	46.0	3.51	1.10	0.17	2.25



Alt Model-Shift Uniqueness Test

005385491-01, P = 12.424613 Days, E = 129.187569 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.7	21.0	3.66	0.96	4.61	1.75	2.25	53.0	55.7	17.4	20.1	1.00	1.10	0.17	1.04



Stellar Parameters For KIC 005385491

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5478^{+164}_{-147}	$4.351^{+0.184}_{-0.225}$	$-0.040^{+0.300}_{-0.250}$	$1.017^{+0.320}_{-0.187}$	$0.845^{+0.119}_{-0.064}$	$1.133^{+1.027}_{-0.613}$
	+3%/-3%	+4%/-5%	+750%/-625%	+31%/-18%	+14%/-8%	+91%/-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 005385491-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-107 ± 2	$1.51^{+0.25}_{-0.17}$	1088^{+84}_{-74}	4881^{+162}_{-144}	258^{+69}_{-67}
Alt.	-48 ± 2	$1.31^{+0.23}_{-0.15}$	1089^{+83}_{-78}	4393^{+132}_{-117}	152^{+42}_{-43}

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

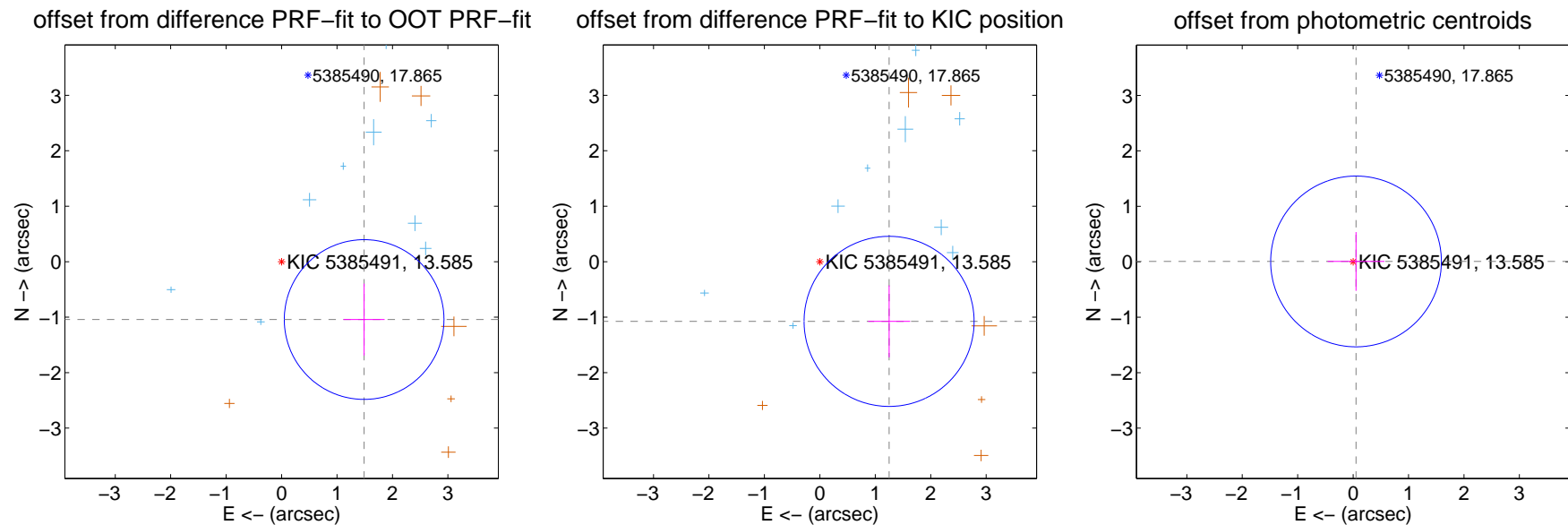
DV Centroid Data

Supplemental centroid analysis for 005385491-01. Kepler magnitude: 13.59. Transit SNR 22.52

There are 9 quarters with good PRF difference image offsets

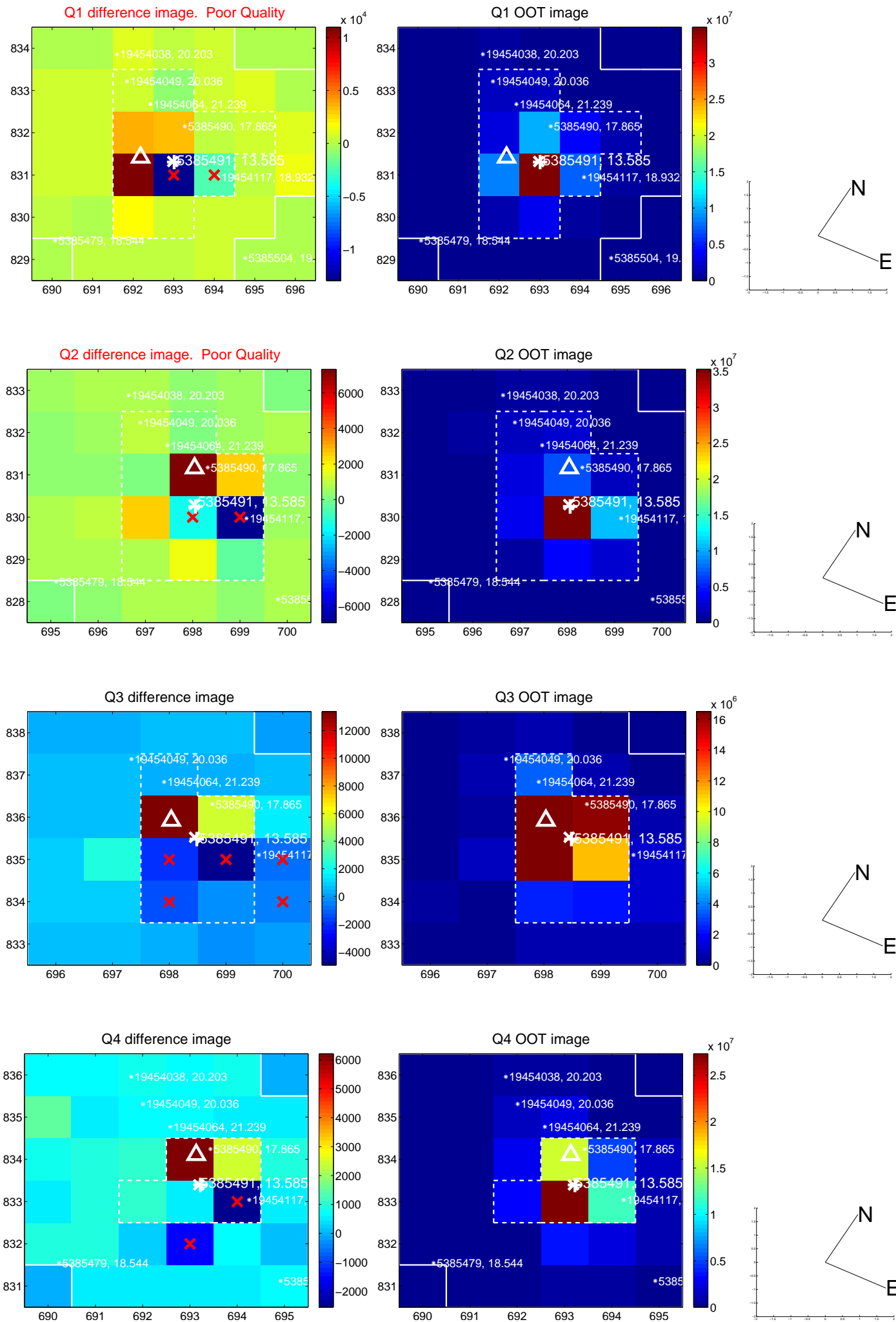
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.818 ± 0.480	3.79	-1.489 ± 0.370	-1.043 ± 0.648
PRF-fit source offset from KIC position	1.649 ± 0.511	3.23	-1.249 ± 0.380	-1.076 ± 0.647
photometric centroid source offset	0.05 ± 0.51	0.10	-0.05 ± 0.51	0.01 ± 0.53

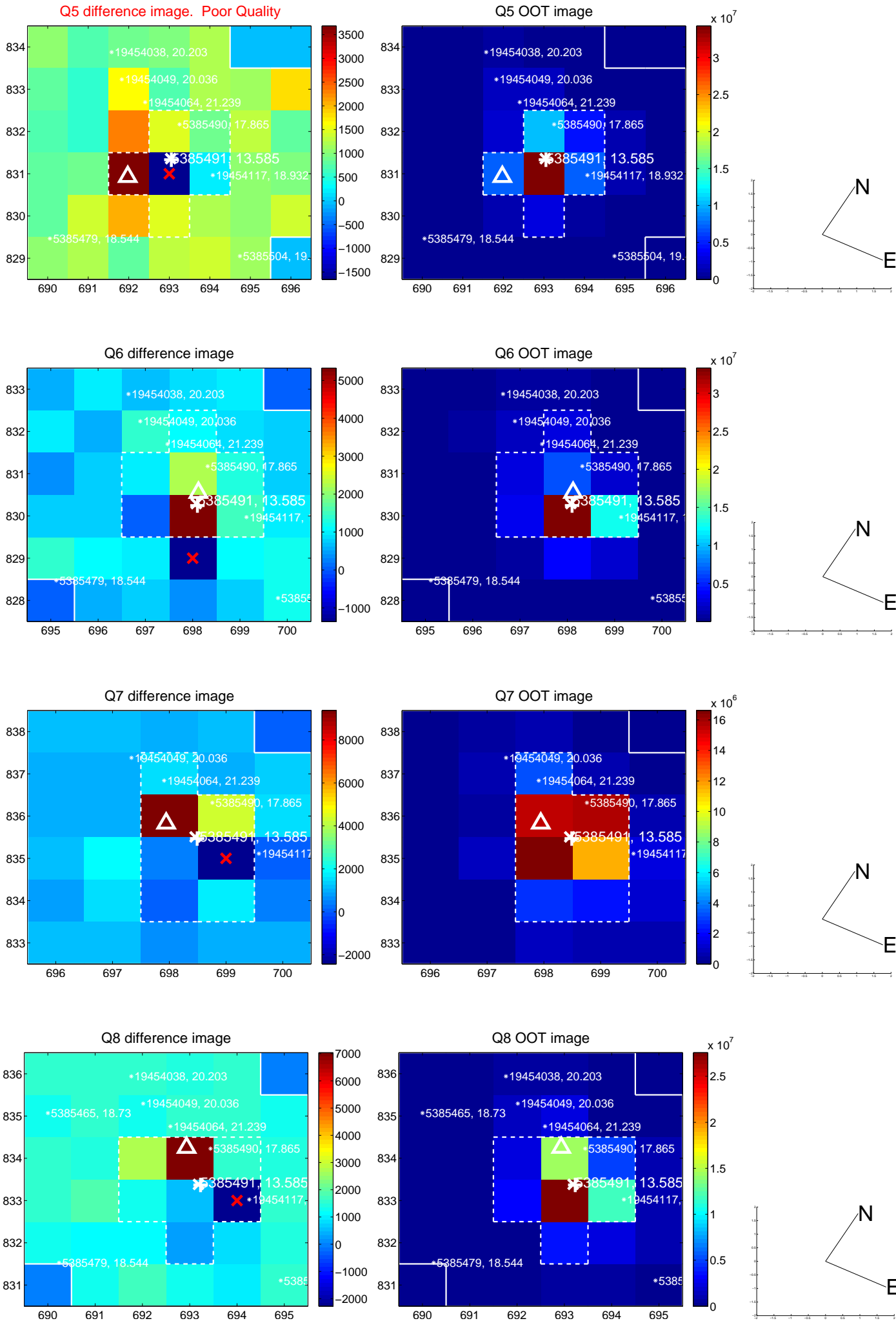


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

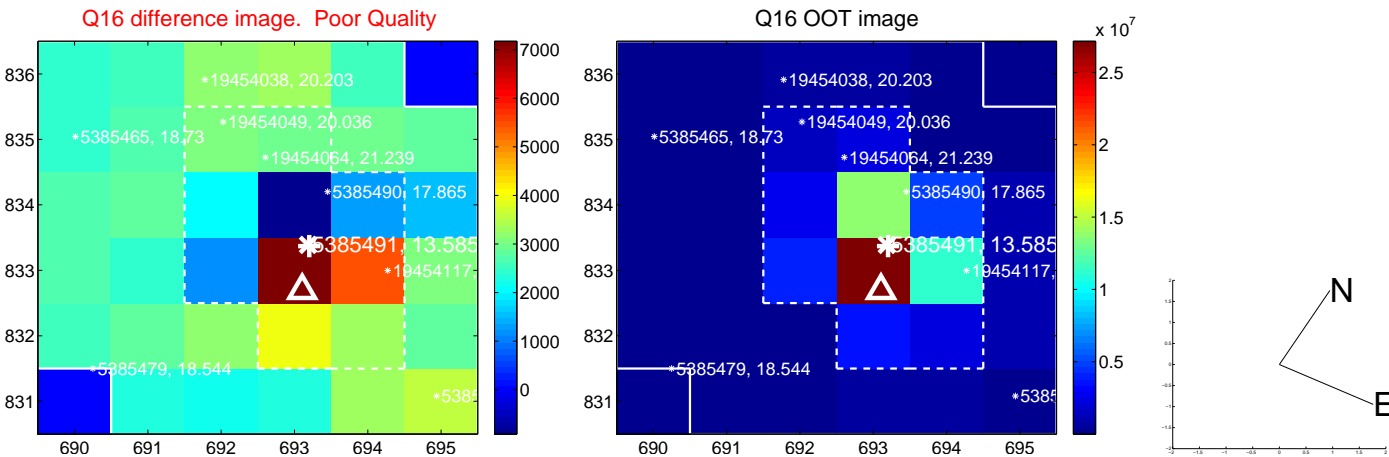
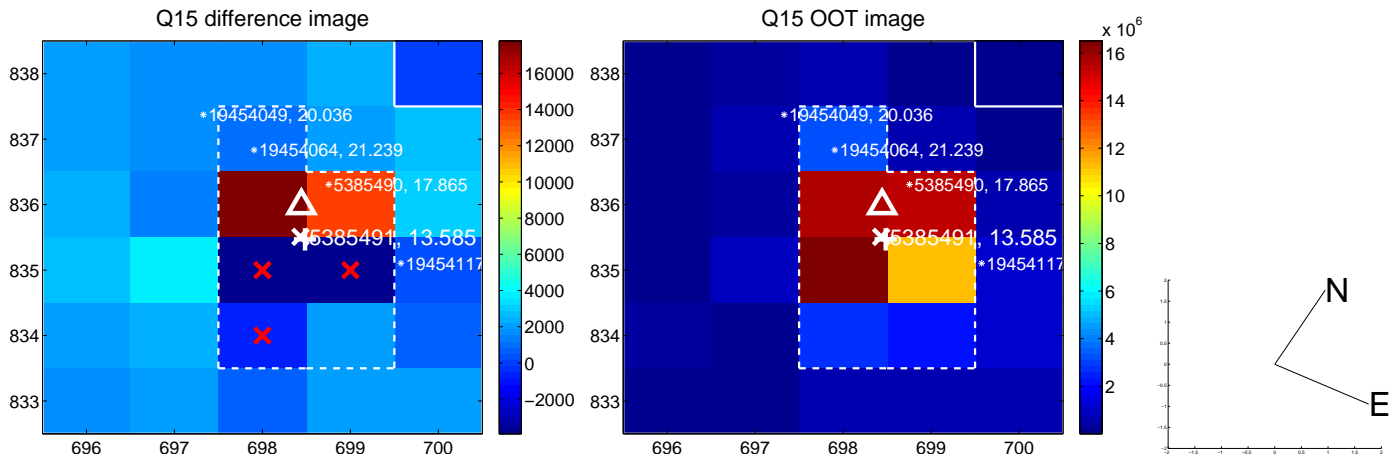
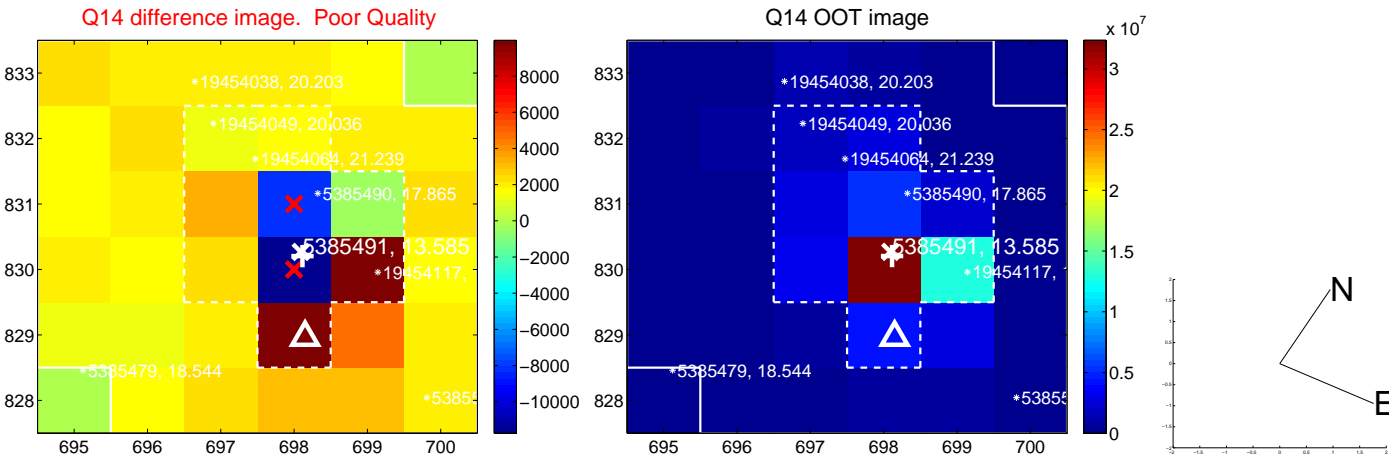
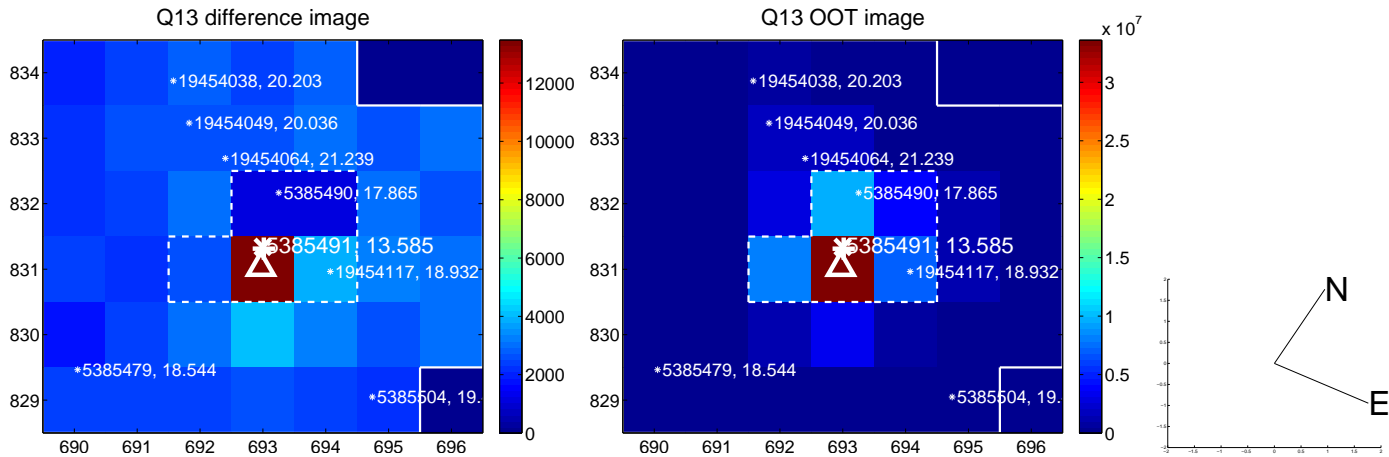
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



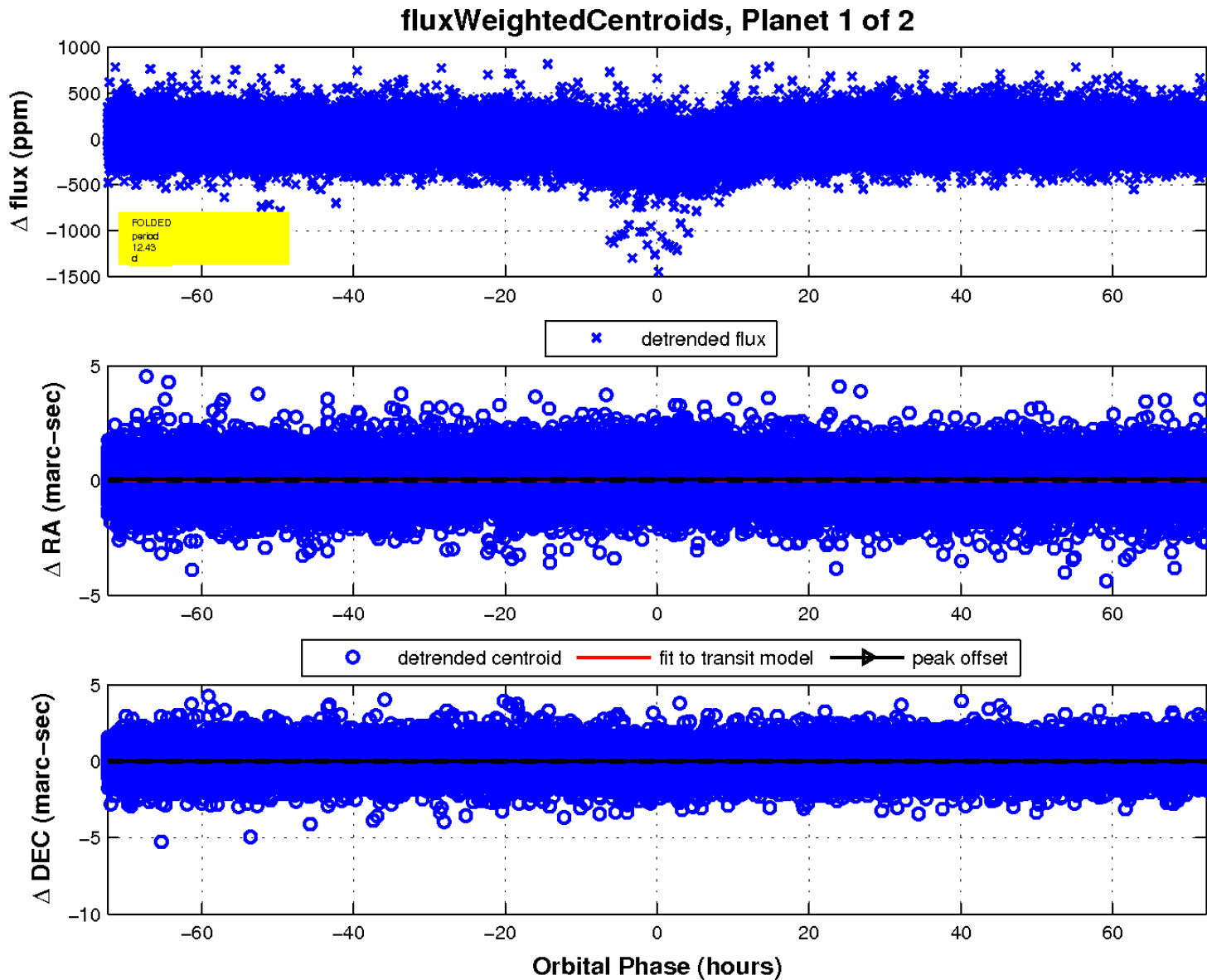
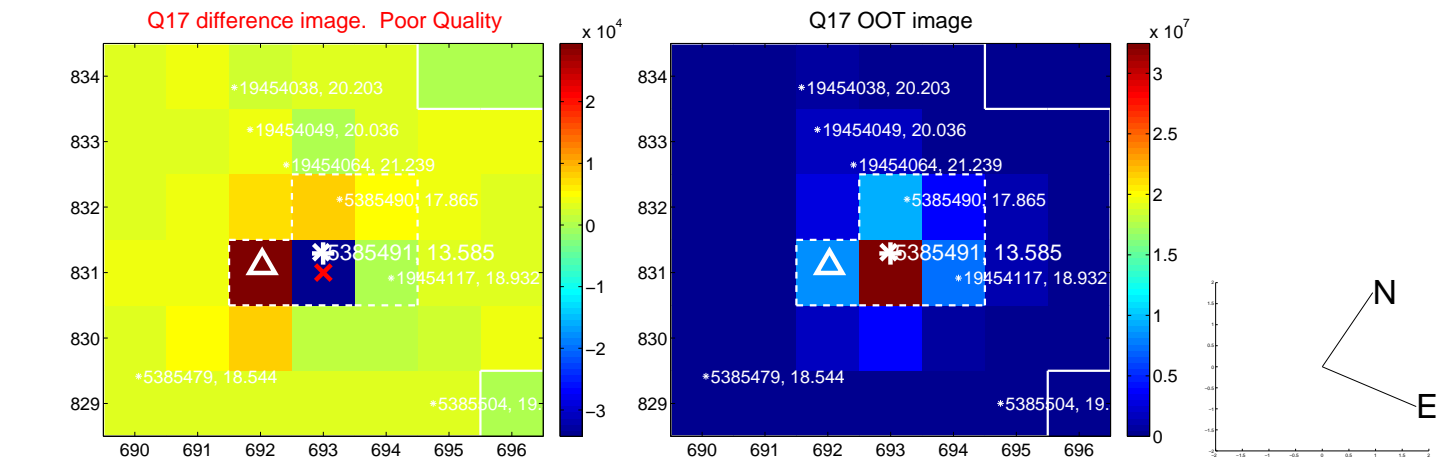
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

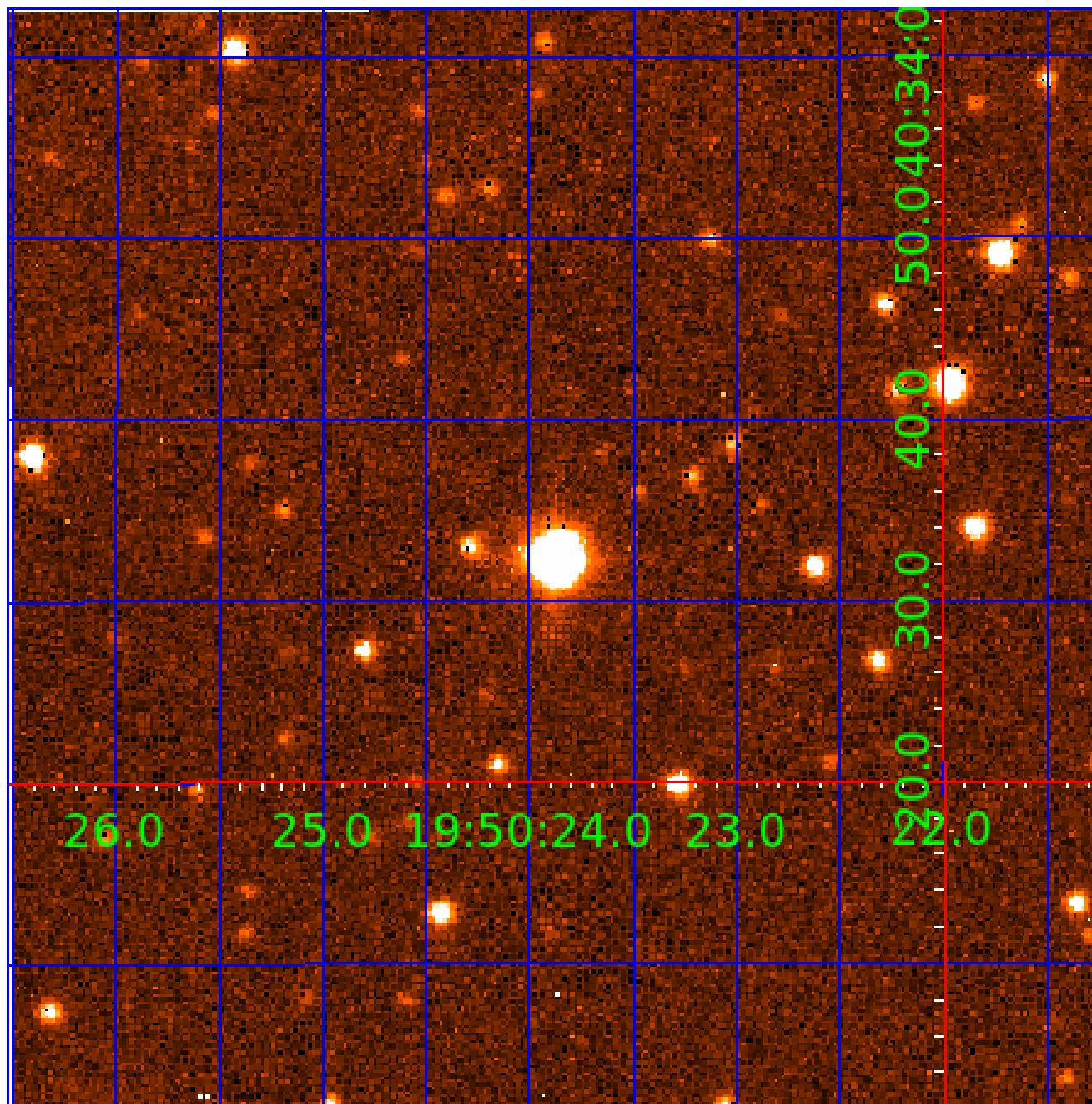


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005385491

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})
005385491-01	OBS	No	12.425130	141.564324	109.8	24.127	20.3	22.5	1.02	5478	1.50	84.57
005385491-02	OBS	3988.01	12.425731	133.971747	104.7	26.410	18.7	25.2	1.02	5478	1.45	84.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385491-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—HALO_GHOST—EPHEM_MATCH
005385491-02	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.

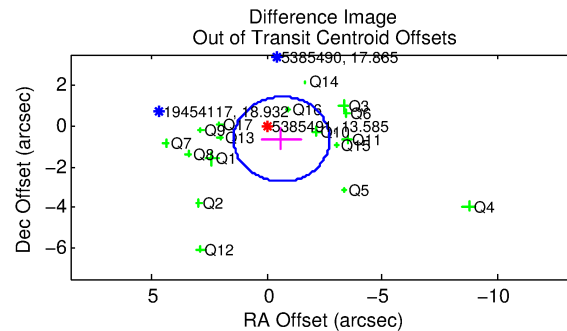
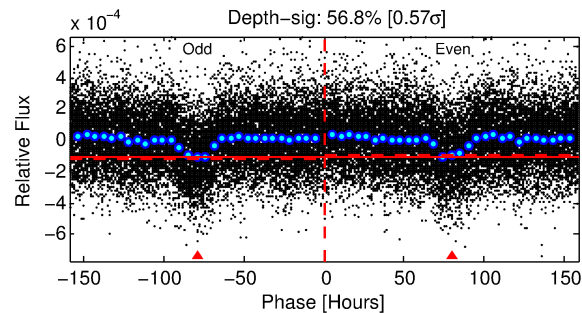
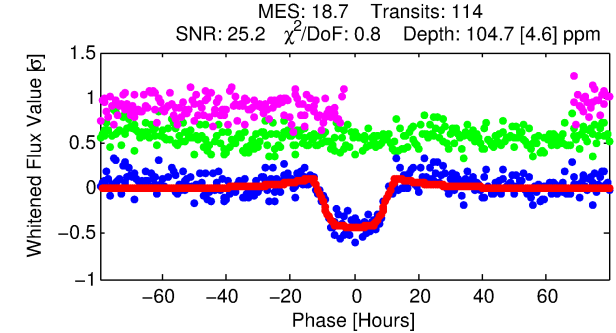
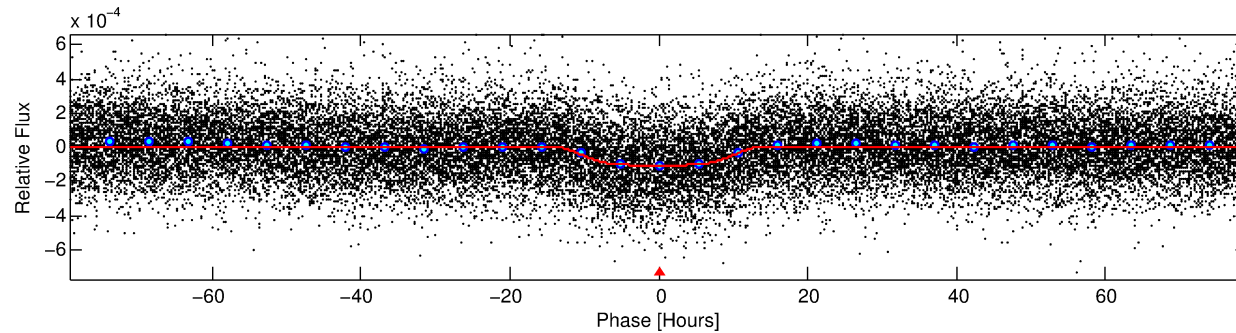
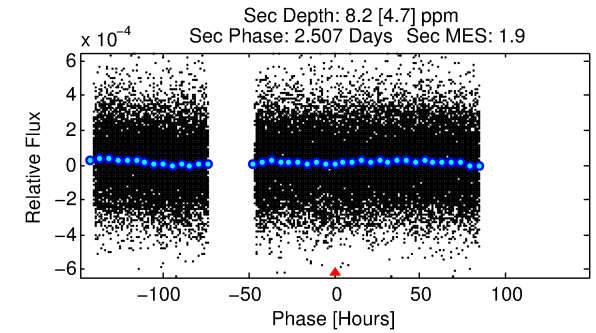
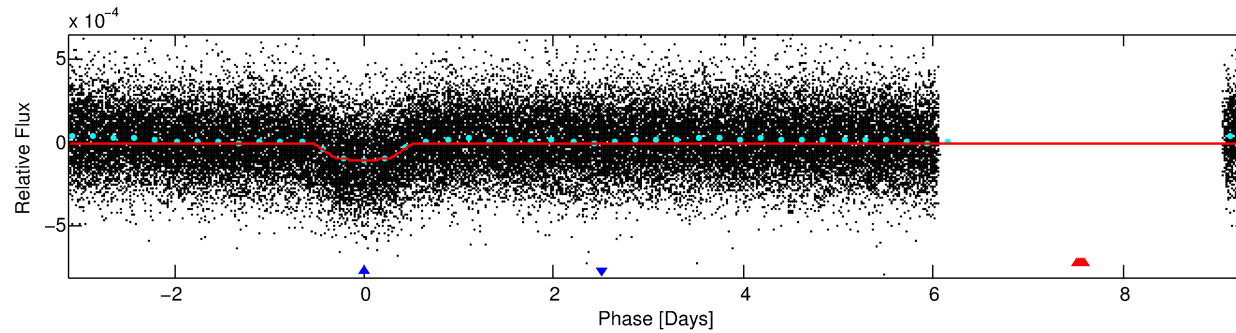
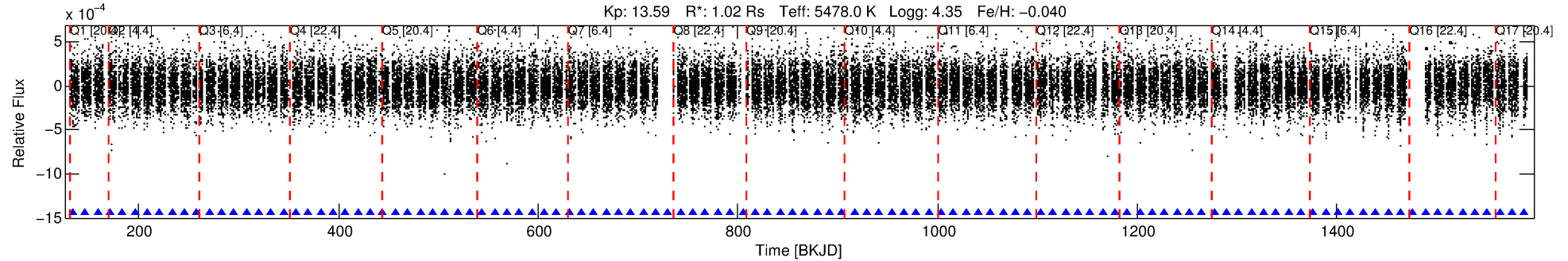
Ephemeris Match Information For 005385491-02

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
005385491-02	5385491	V380-Cyg-sec	5385723	1:1	212.2	-14	-51	5.77	13.58	1228.90	Direct-PRF	0	0.71	0.73

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: 5385491 Candidate: 2 of 2 Period: 12.426 d
KOI: K03988.01 Corr: 0.809



DV Fit Results:

Period = 12.42573 [0.00030] d
Epoch = 133.9717 [0.0194] BKJD
Rp/R* = 0.0131 [0.0004]
a/R* = 1.36 [0.05]
b = 0.98 [0.00]
Seff = 84.56 [35.64]
Teq = 773 [81] K
Rp = 1.45 [0.46] Re
a = 0.0993 [0.0270] AU
Ag = 21.17 [14.90] [1.35σ]
Teffp = 2564 [377] K [4.64σ]

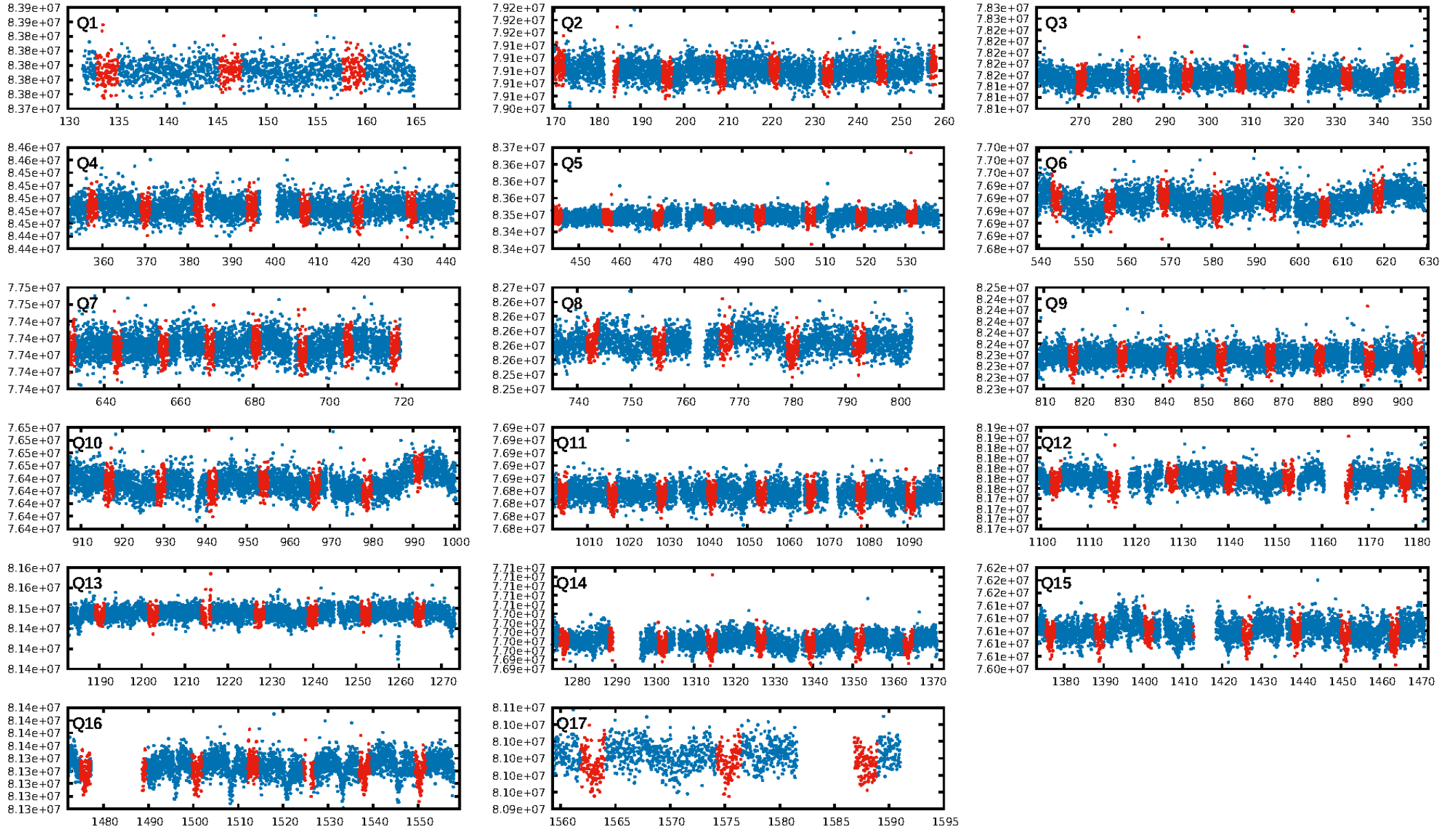
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.75e-84
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: -0.06655
Centroid-sig: 0.0%
Centroid-so: 1.932 arcsec [3.79σ]
OotOffset-rm: 0.911 arcsec [1.32σ]
KicOffset-rm: 0.803 arcsec [1.39σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.18 [3/17]
DiffImageOverlap-fno: 1.00 [17/17]

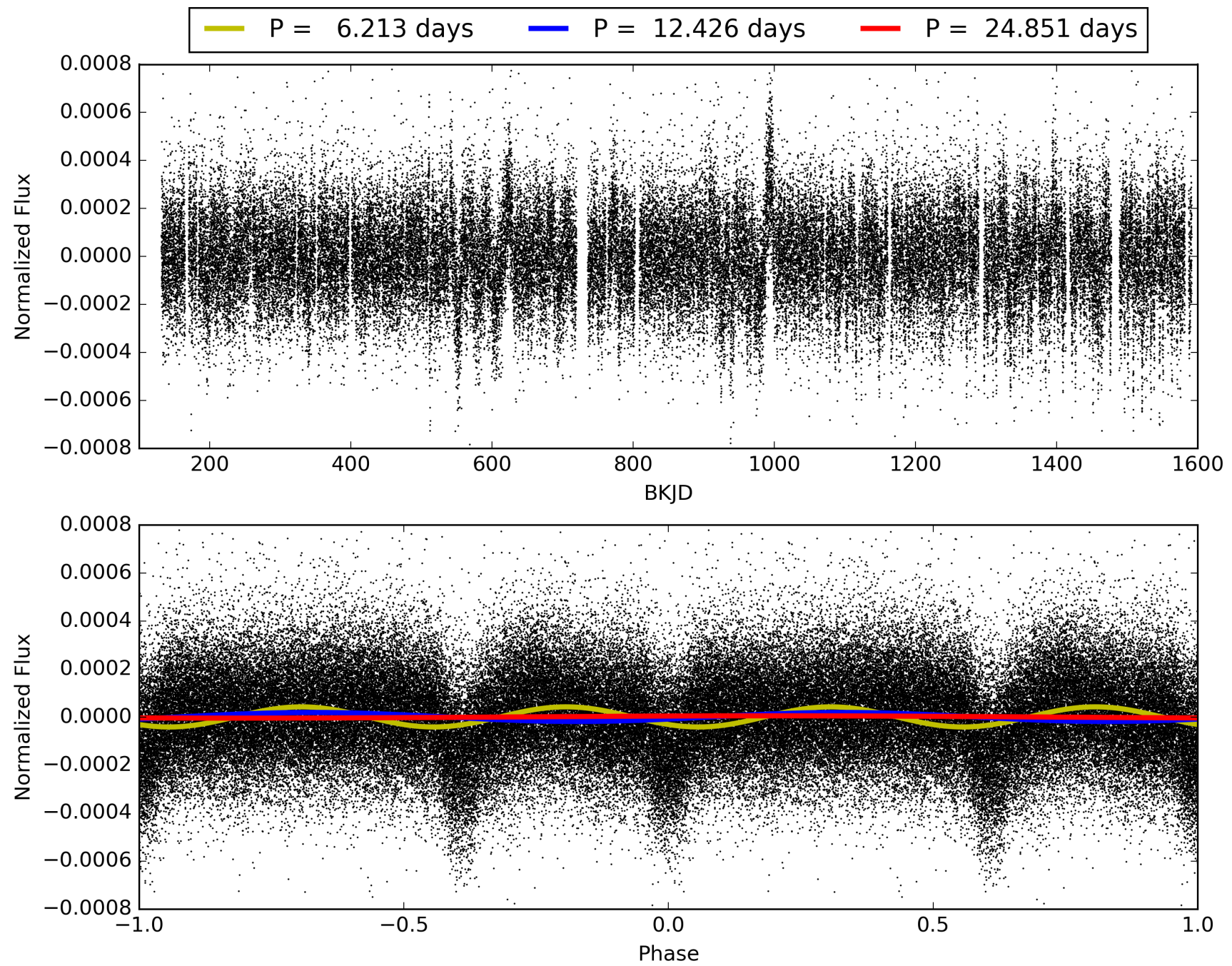
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:28:33 Z

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

TCE 005385491-02, PDC Light Curves

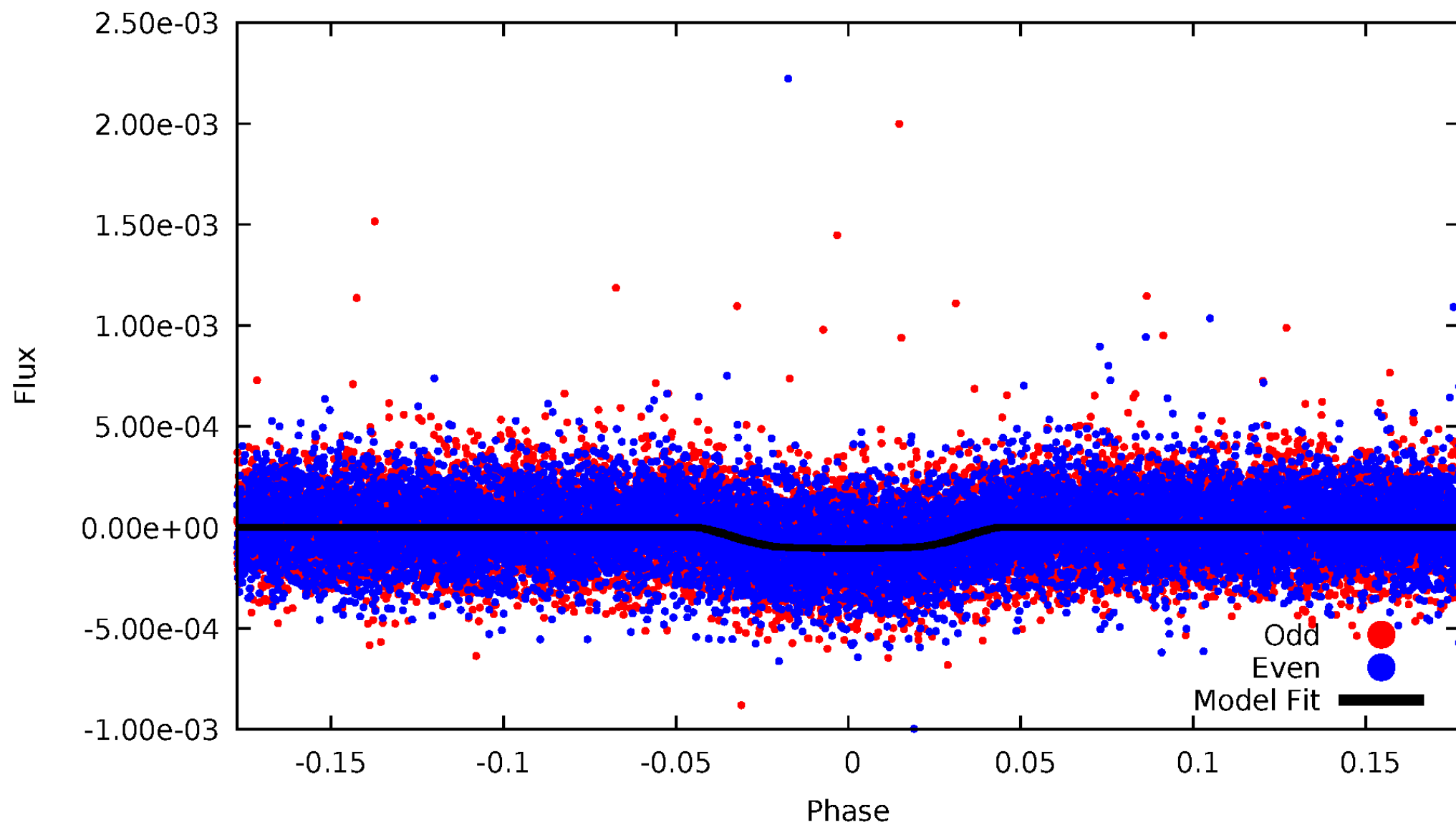


TCE 005385491-02



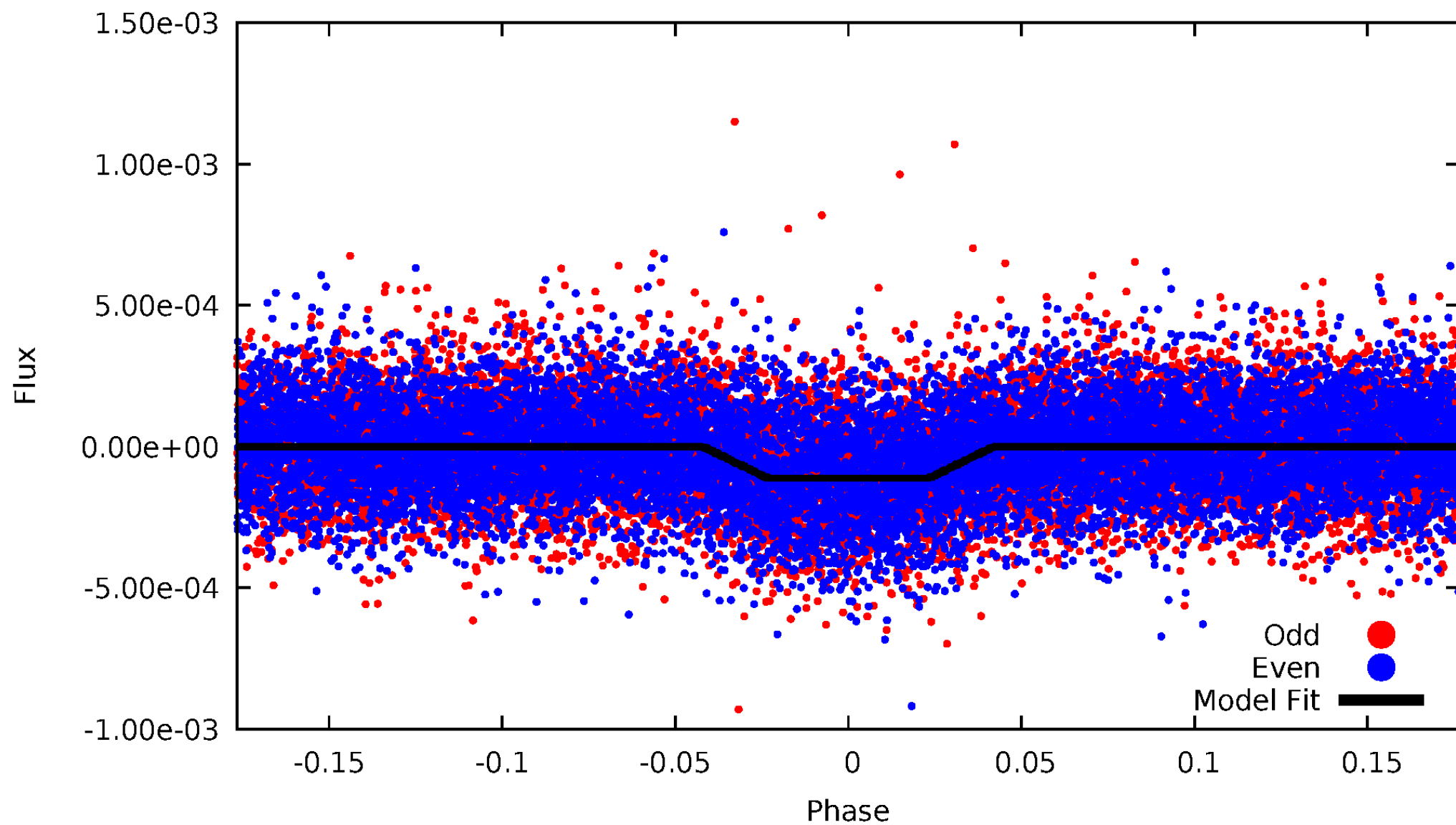
DV Odd/Even

TCE 005385491-02



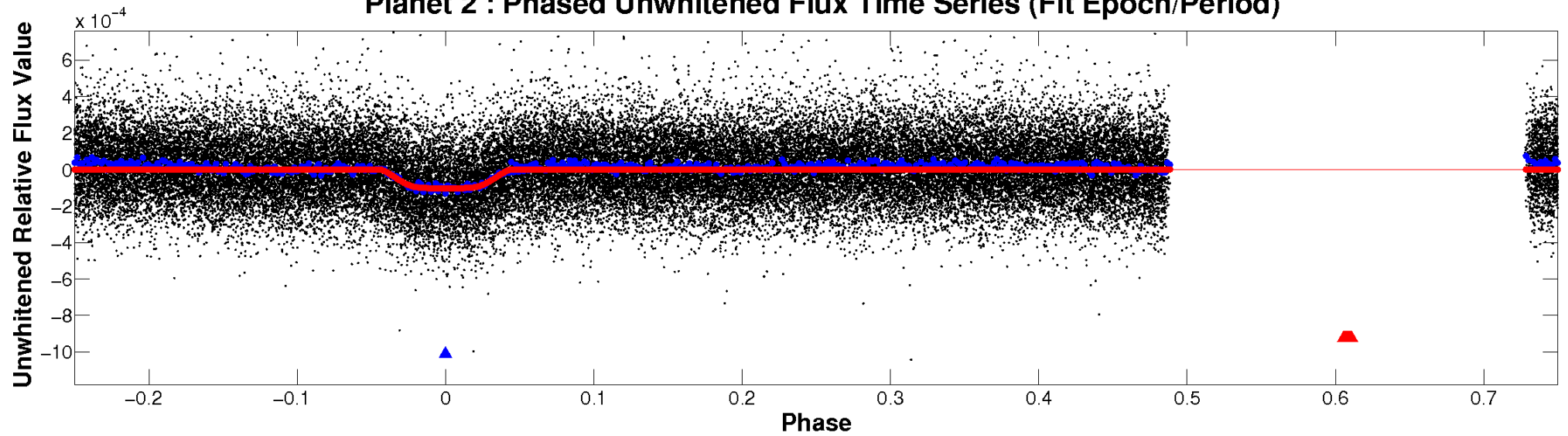
ALT Odd/Even

TCE 005385491-02

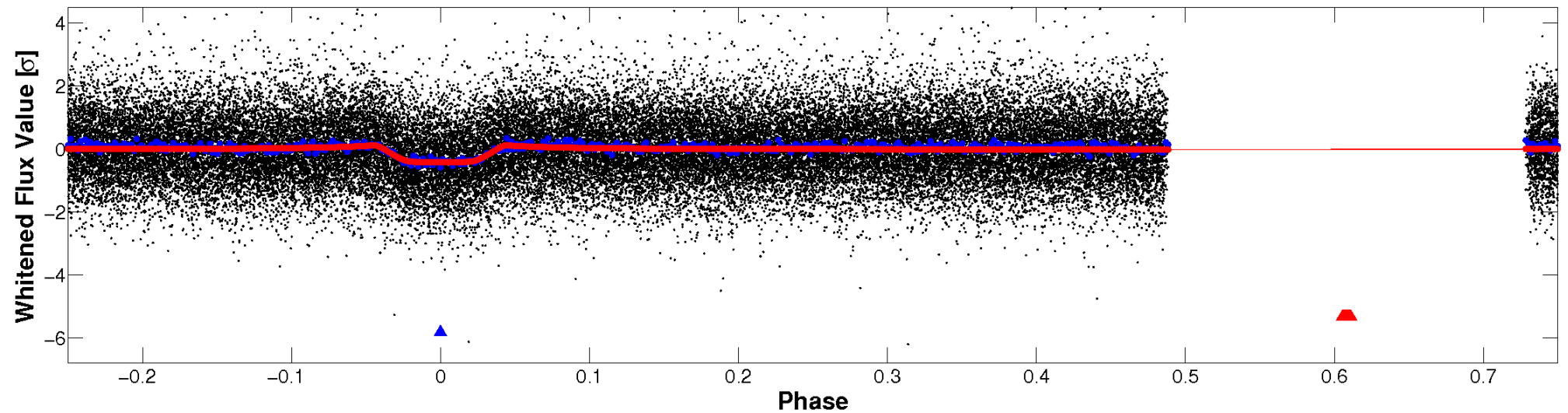


Non-Whitened Vs. Whitened Light Curve

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

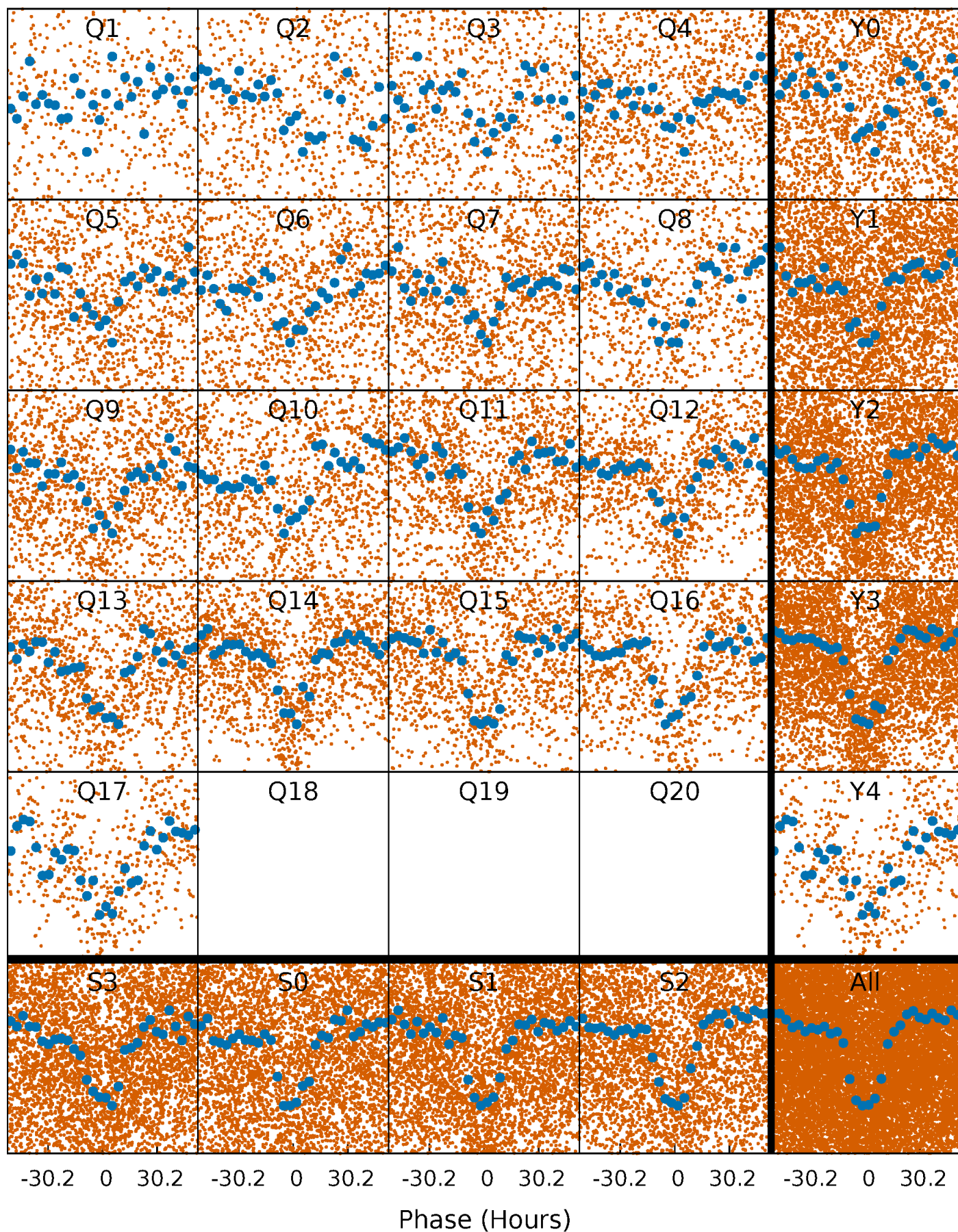


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



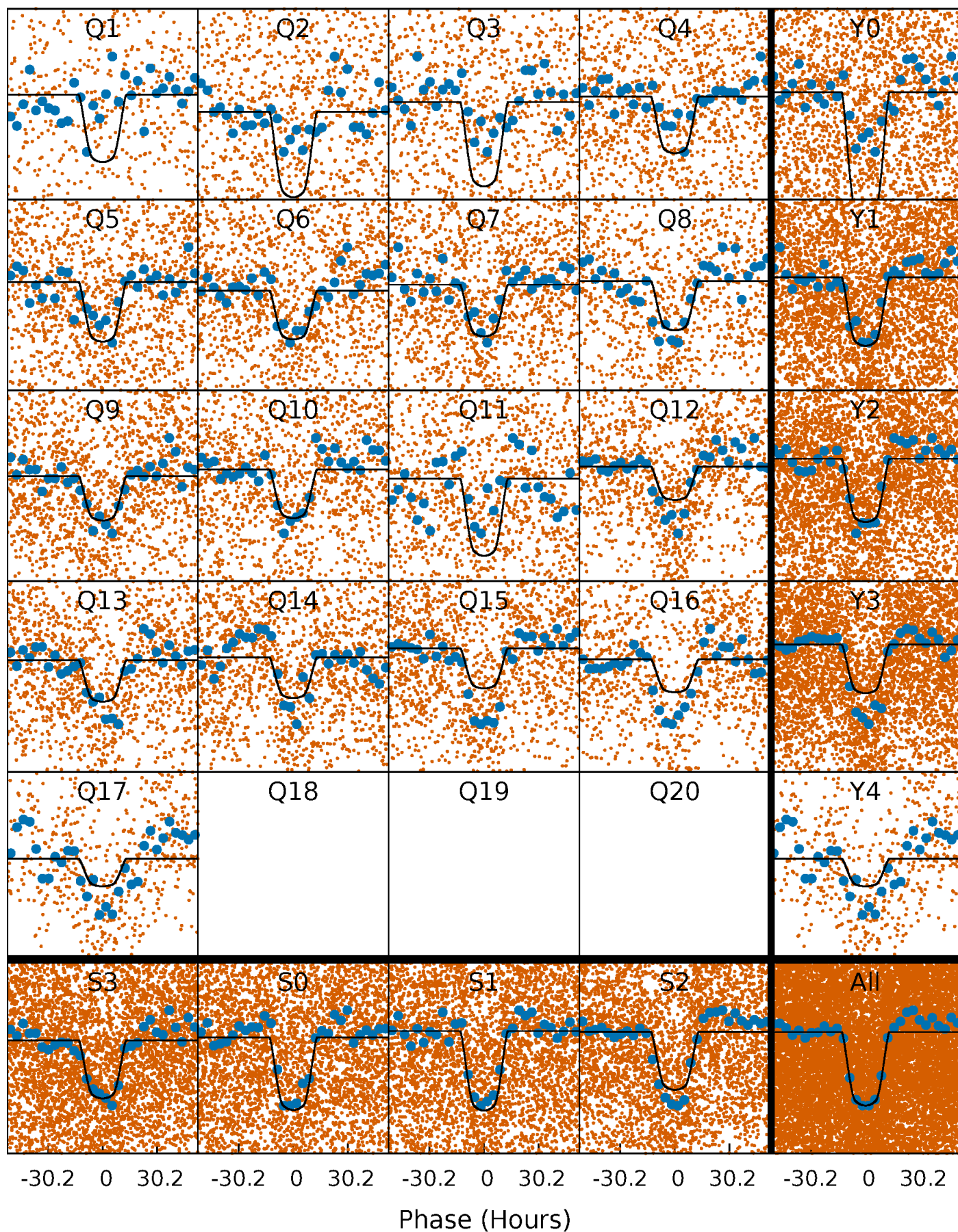
PDC Quarter-Phased Transit Curves

TCE 005385491-02 P= 12.425731 Days $T_0=133.971747$ (BKJD)



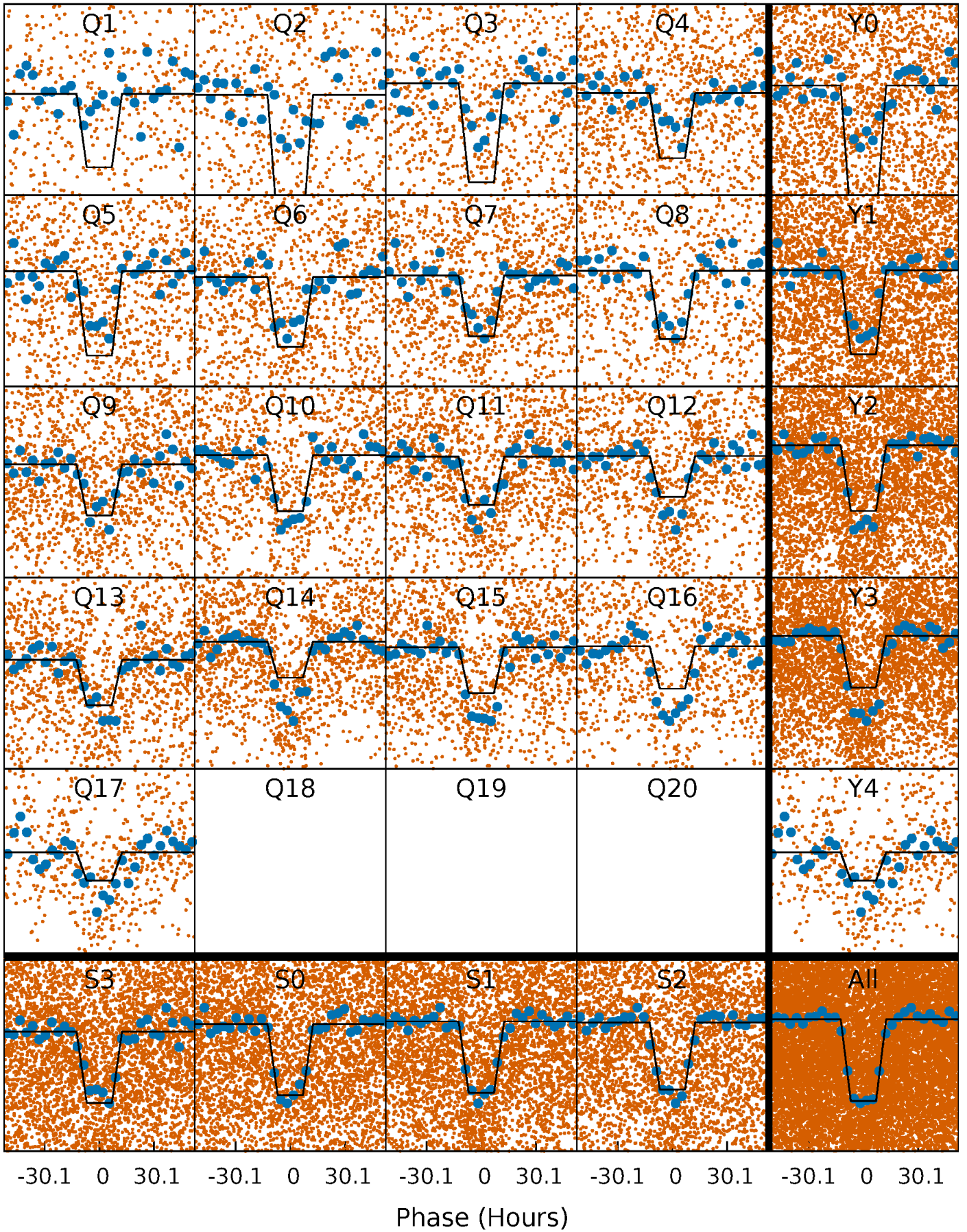
DV Quarter-Phased Transit Curves

TCE 005385491-02 P= 12.425731 Days $T_0=133.971747$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

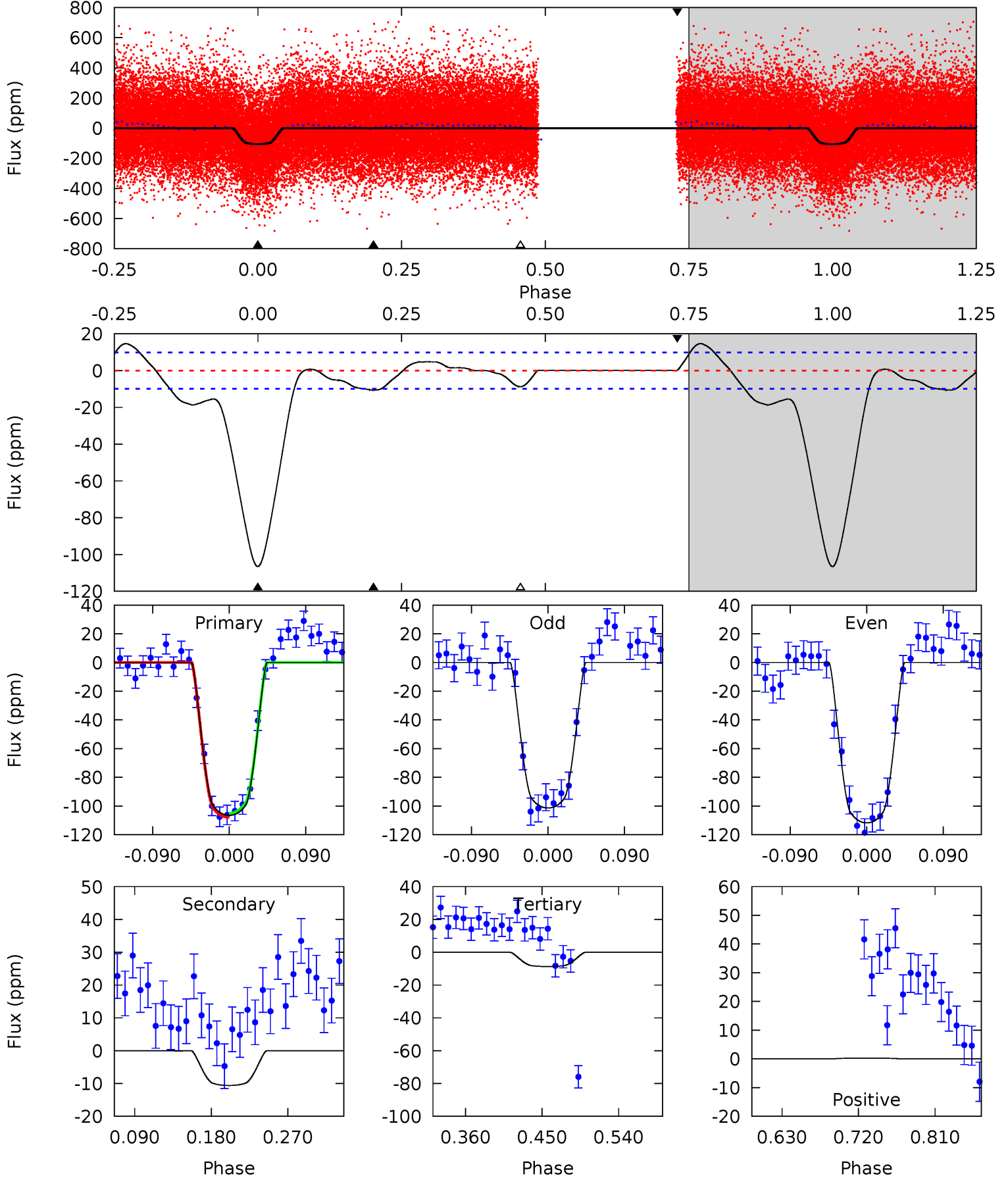
TCE 005385491-02 P= 12.425672 Days $T_0=133.982300$ (BKJD)



DV Model-Shift Uniqueness Test

005385491-02, P = 12.425731 Days, E = 121.546016 Days

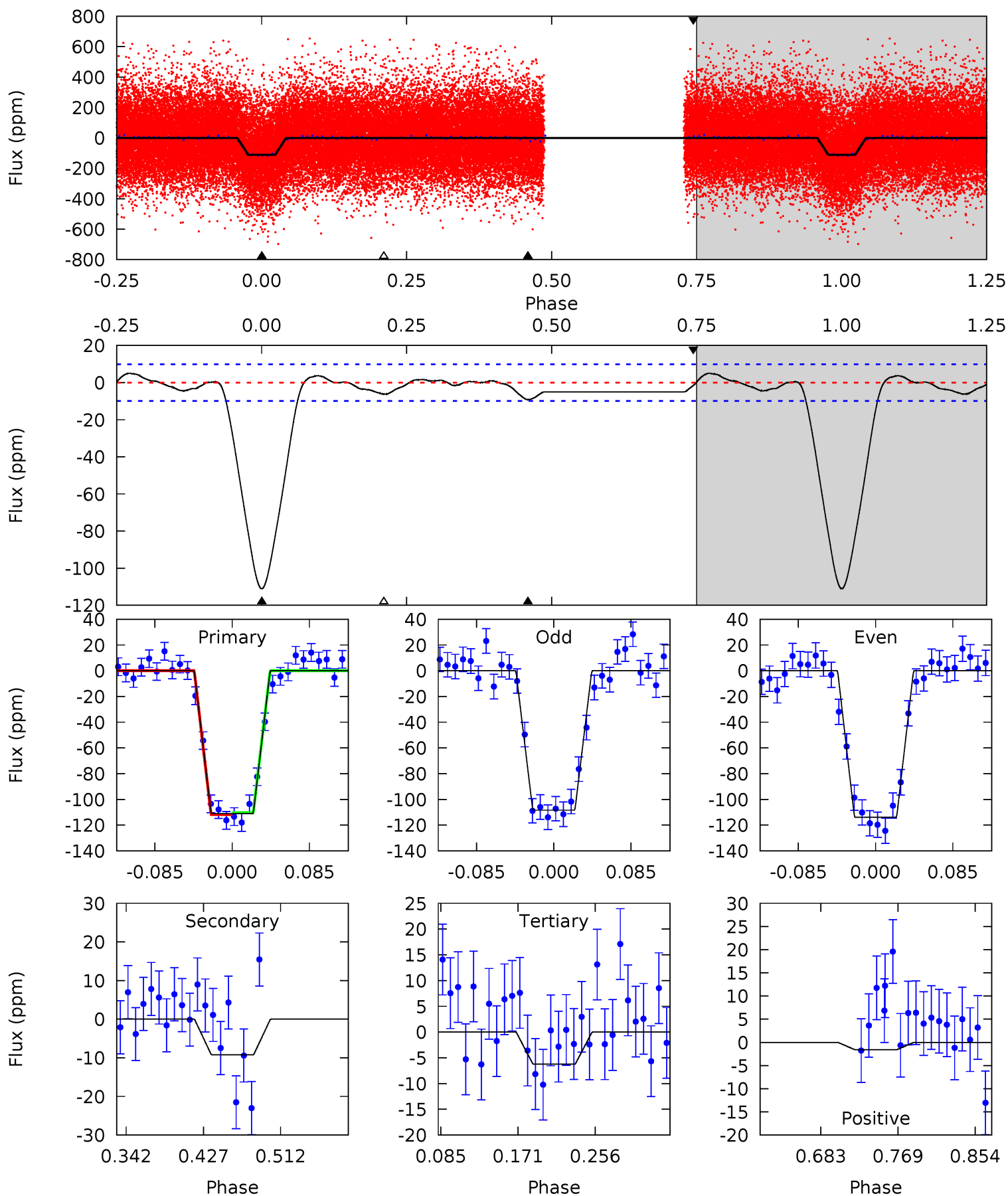
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
49.4	4.92	4.05	0.13	4.59	1.70	3.99	45.3	49.3	0.87	4.80	2.40	0.89	0.12	0.58



Alt Model-Shift Uniqueness Test

005385491-02, P = 12.425672 Days, E = 121.556628 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.7	4.31	2.91	-0.73	4.60	1.72	1.28	48.8	52.4	1.40	5.04	1.29	0.89	0.04	0.37



Stellar Parameters For KIC 005385491

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5478^{+164}_{-147}	$4.351^{+0.184}_{-0.225}$	$-0.040^{+0.300}_{-0.250}$	$1.017^{+0.320}_{-0.187}$	$0.845^{+0.119}_{-0.064}$	$1.133^{+1.027}_{-0.613}$
	+3%/-3%	+4%/-5%	+750%/-625%	+31%/-18%	+14%/-8%	+91%/-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 005385491-02 / KOI 3988.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-11 ± 2	$1.46^{+0.26}_{-0.17}$	1091^{+87}_{-79}	3282^{+113}_{-125}	26^{+10}_{-8}
Alt.	-9 ± 2	$1.19^{+0.21}_{-0.15}$	1091^{+93}_{-75}	3429^{+144}_{-160}	34^{+15}_{-11}

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

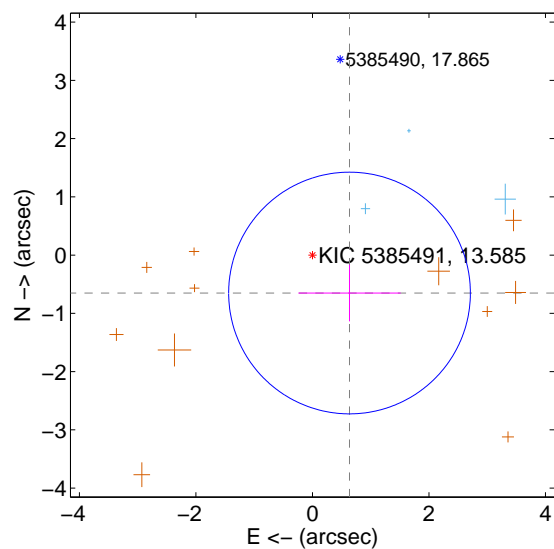
Supplemental centroid analysis for 005385491-02. Kepler magnitude: 13.59. Transit SNR 25.17

There are 3 quarters with good PRF difference image offsets

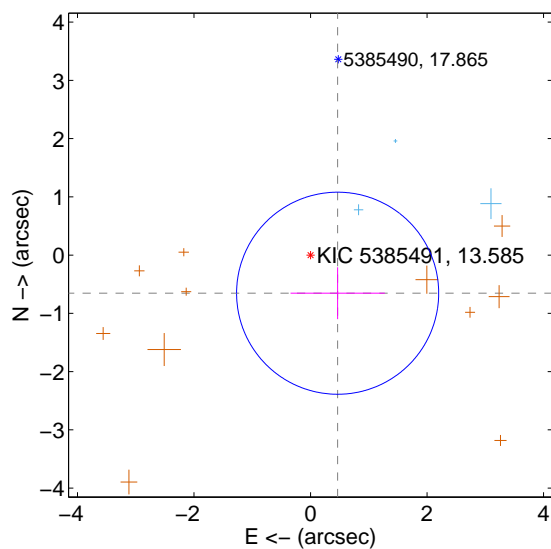
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.911 ± 0.692	1.32	-0.637 ± 0.878	-0.651 ± 0.486
PRF-fit source offset from KIC position	0.803 ± 0.578	1.39	-0.465 ± 0.809	-0.655 ± 0.445
photometric centroid source offset	1.93 ± 0.51	3.79	-0.77 ± 0.50	1.77 ± 0.51

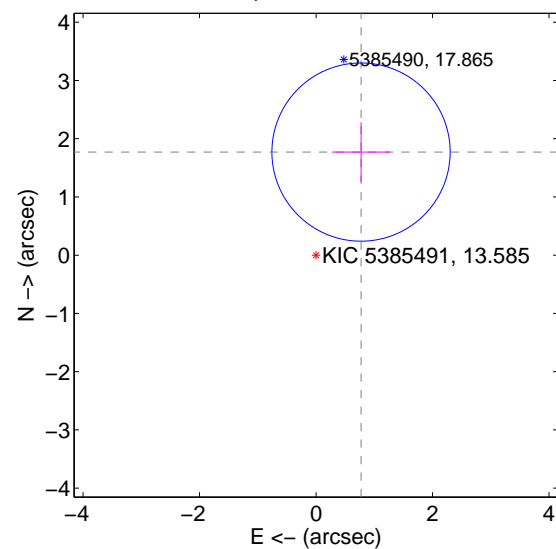
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

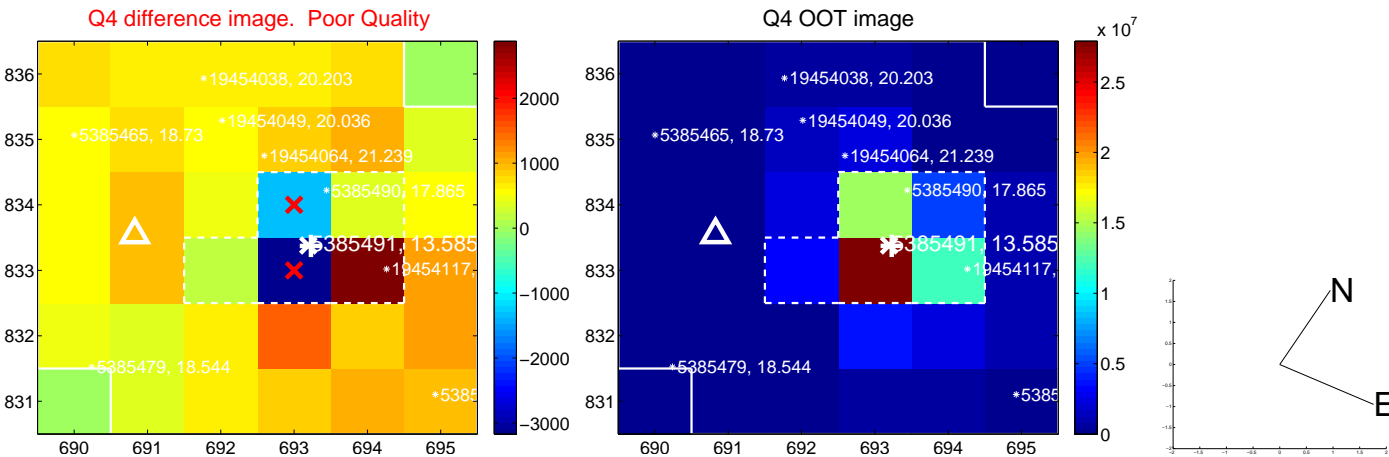
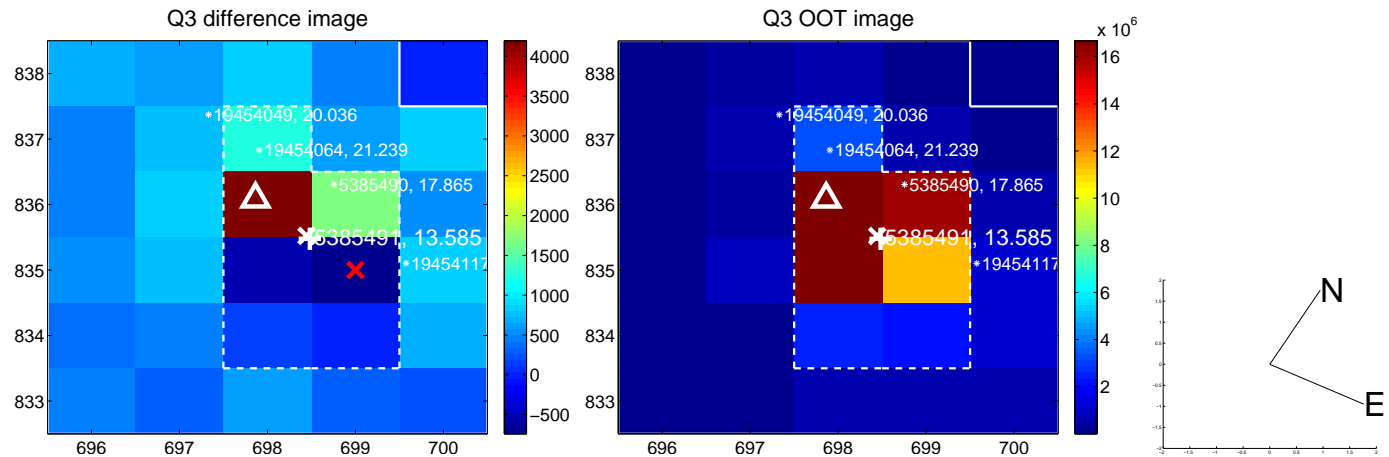
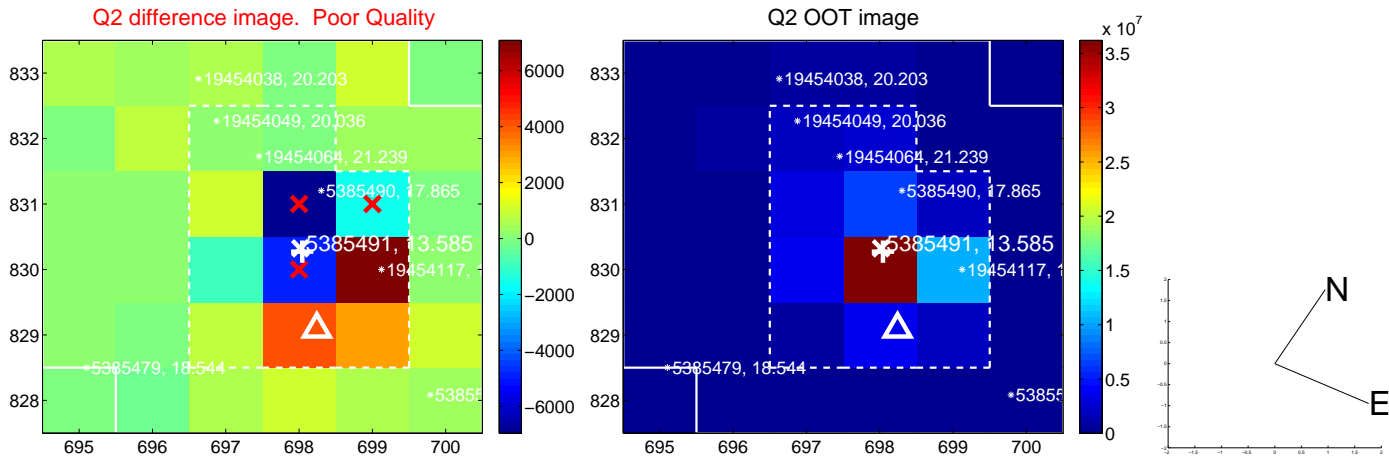
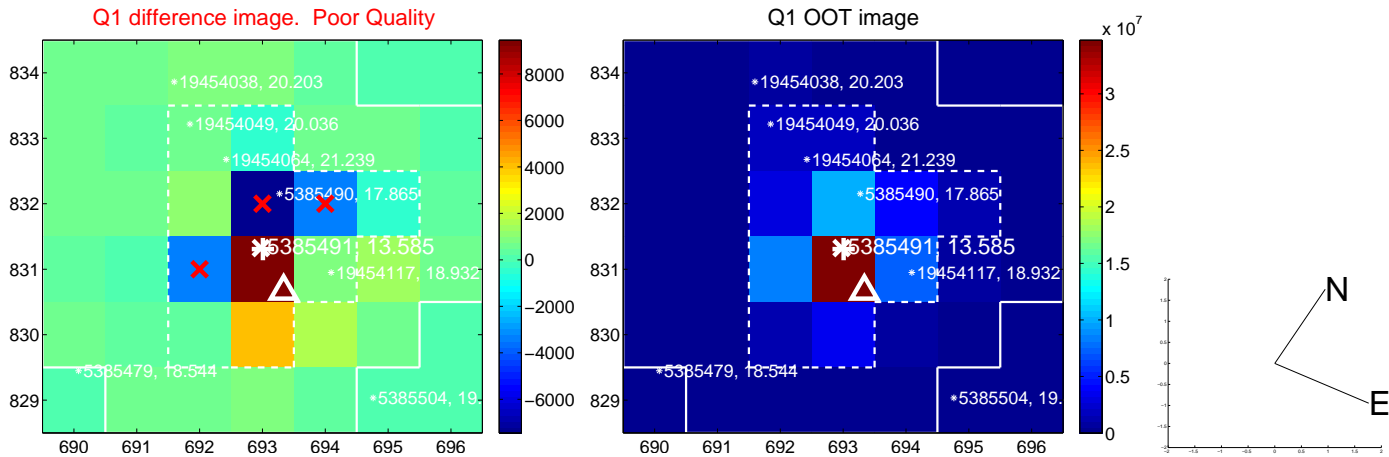


offset from photometric centroids

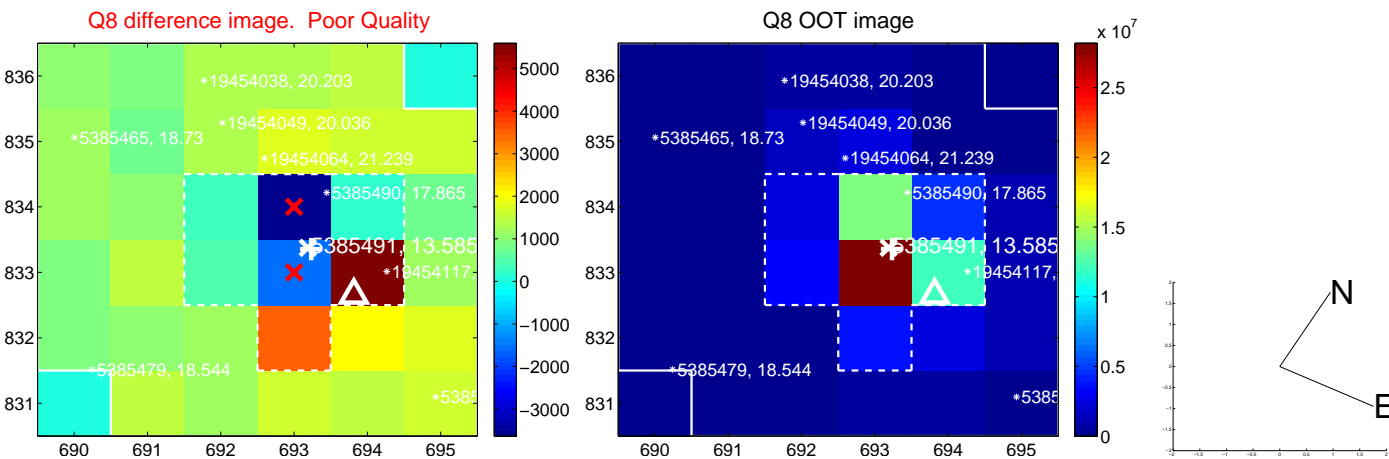
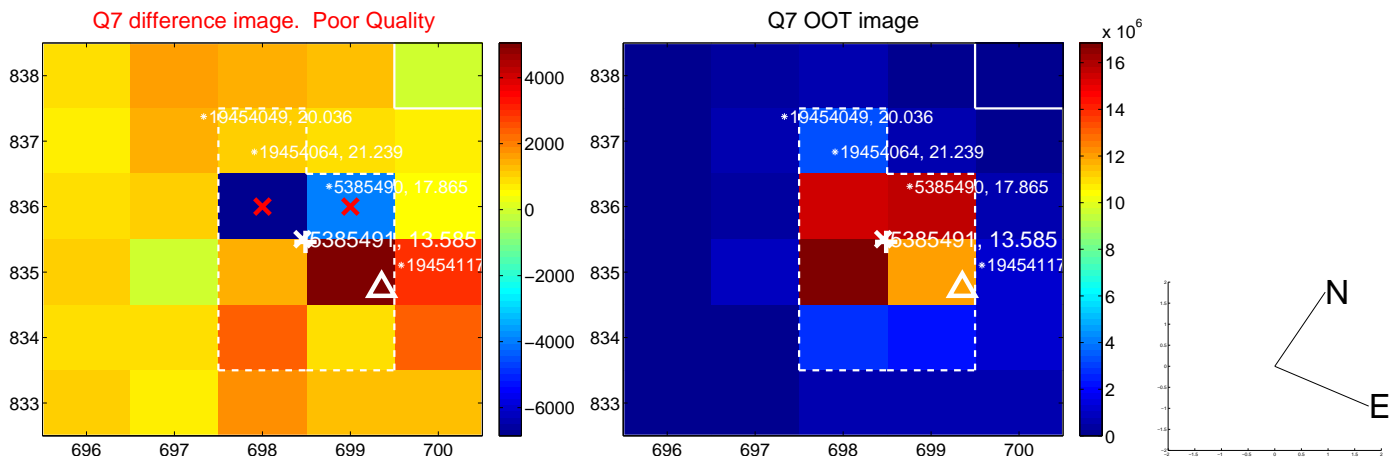
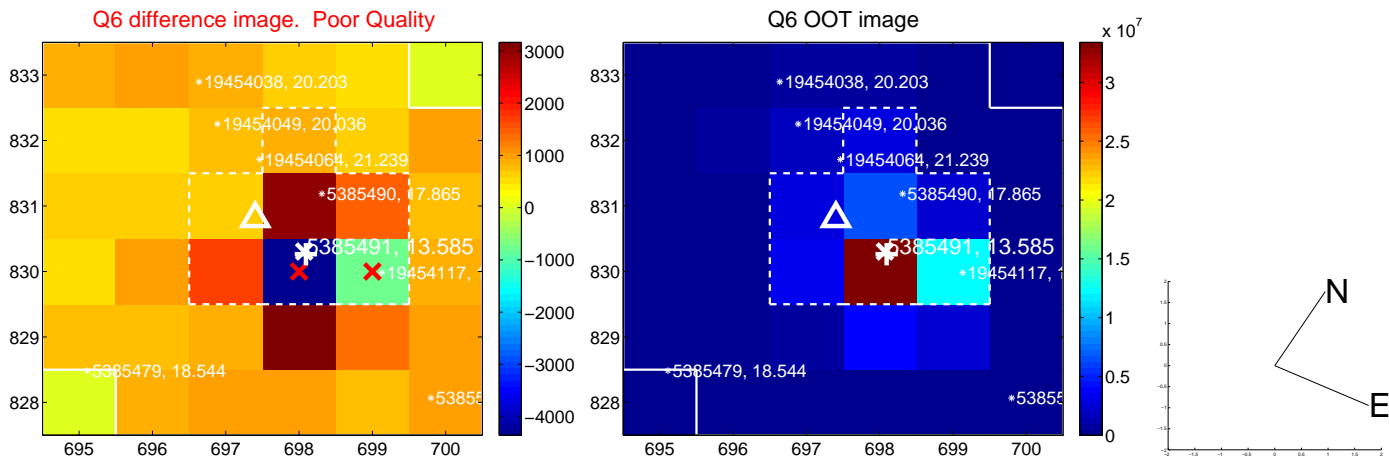
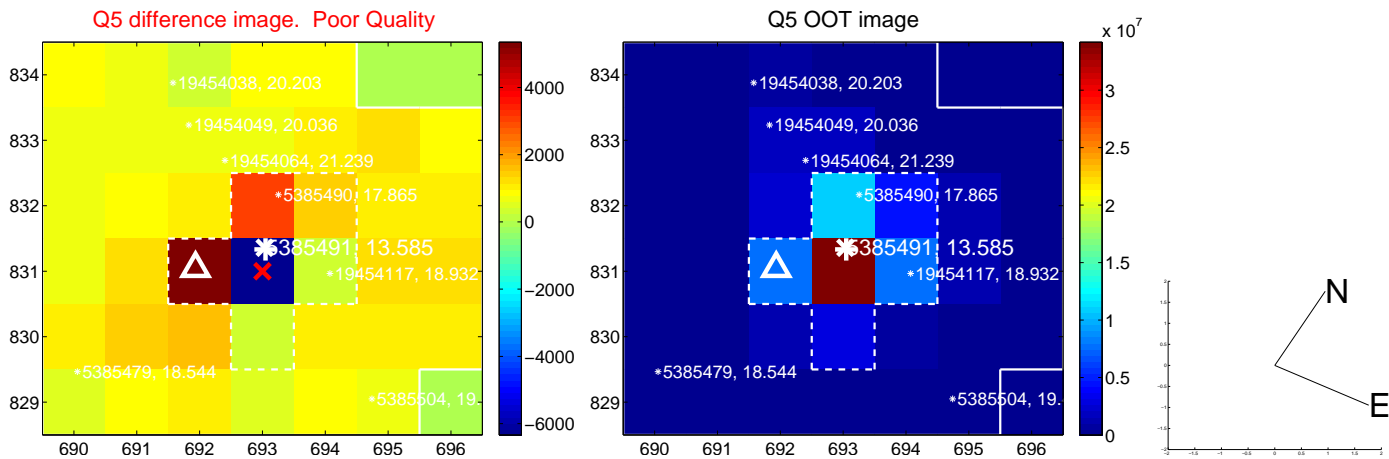


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

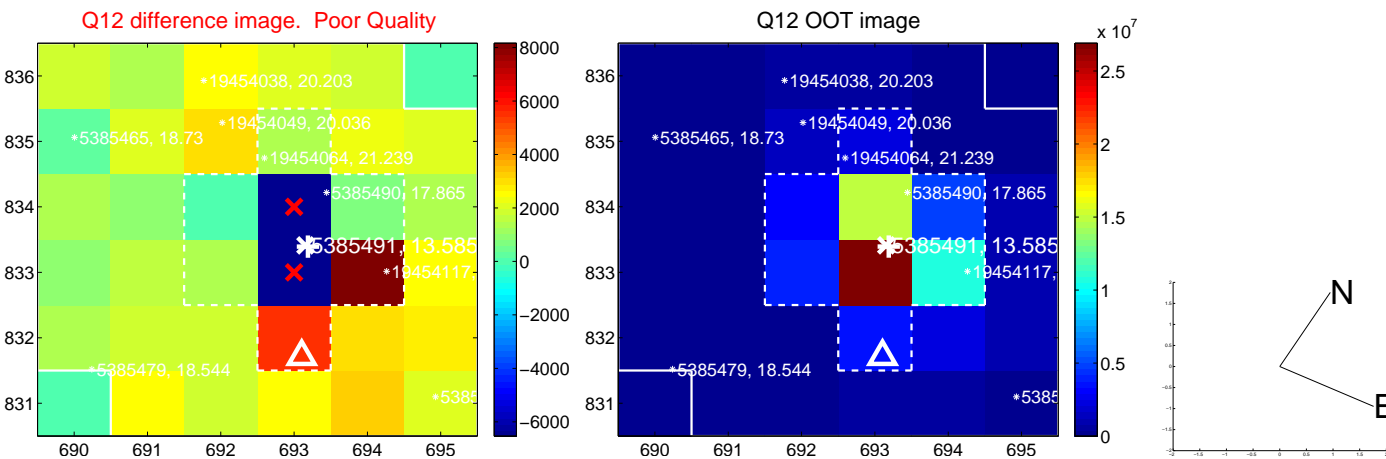
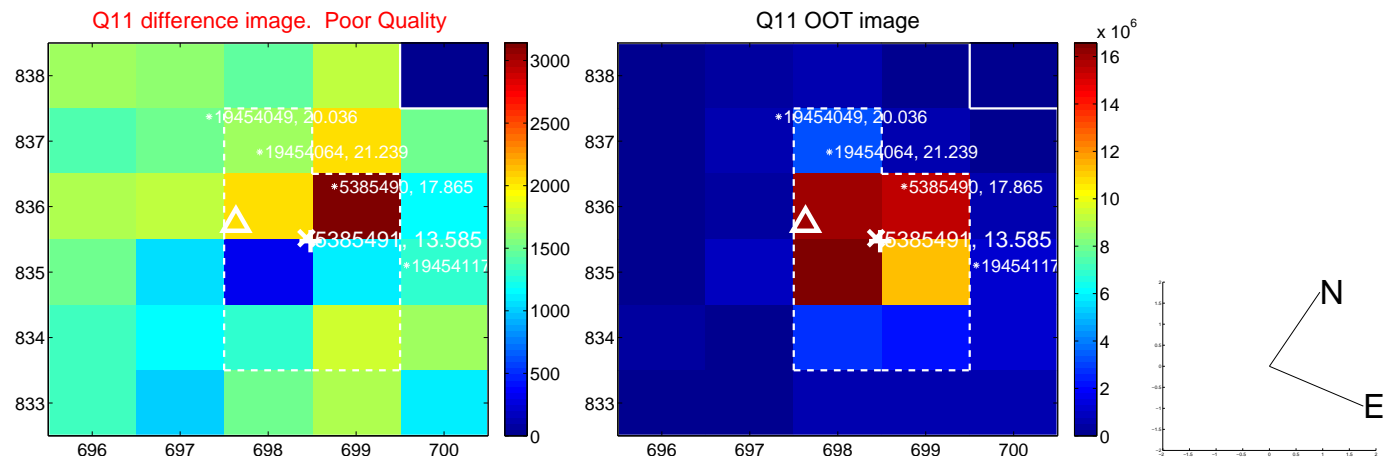
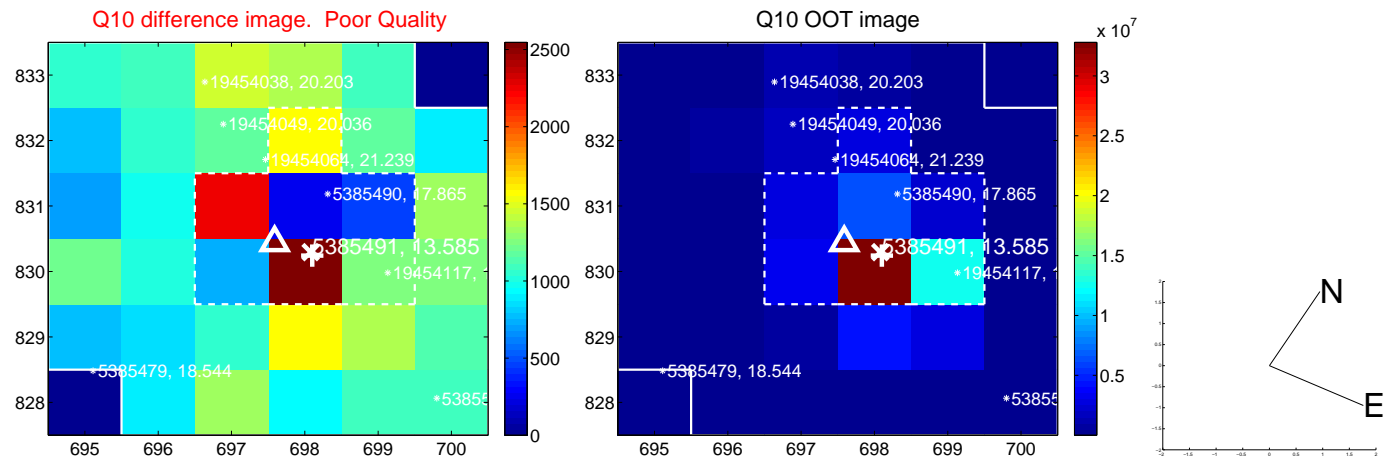
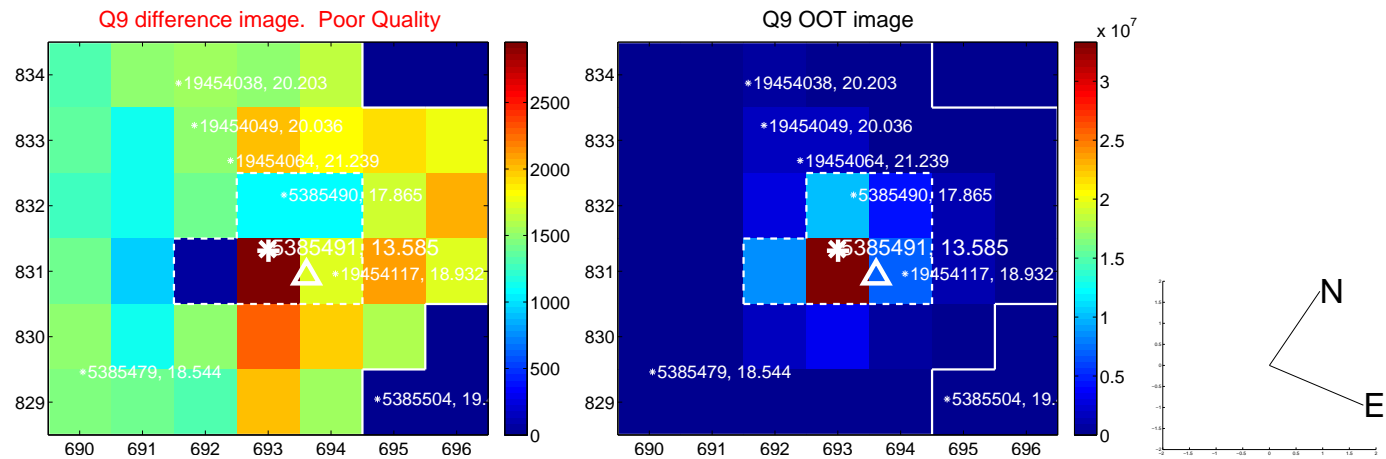
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



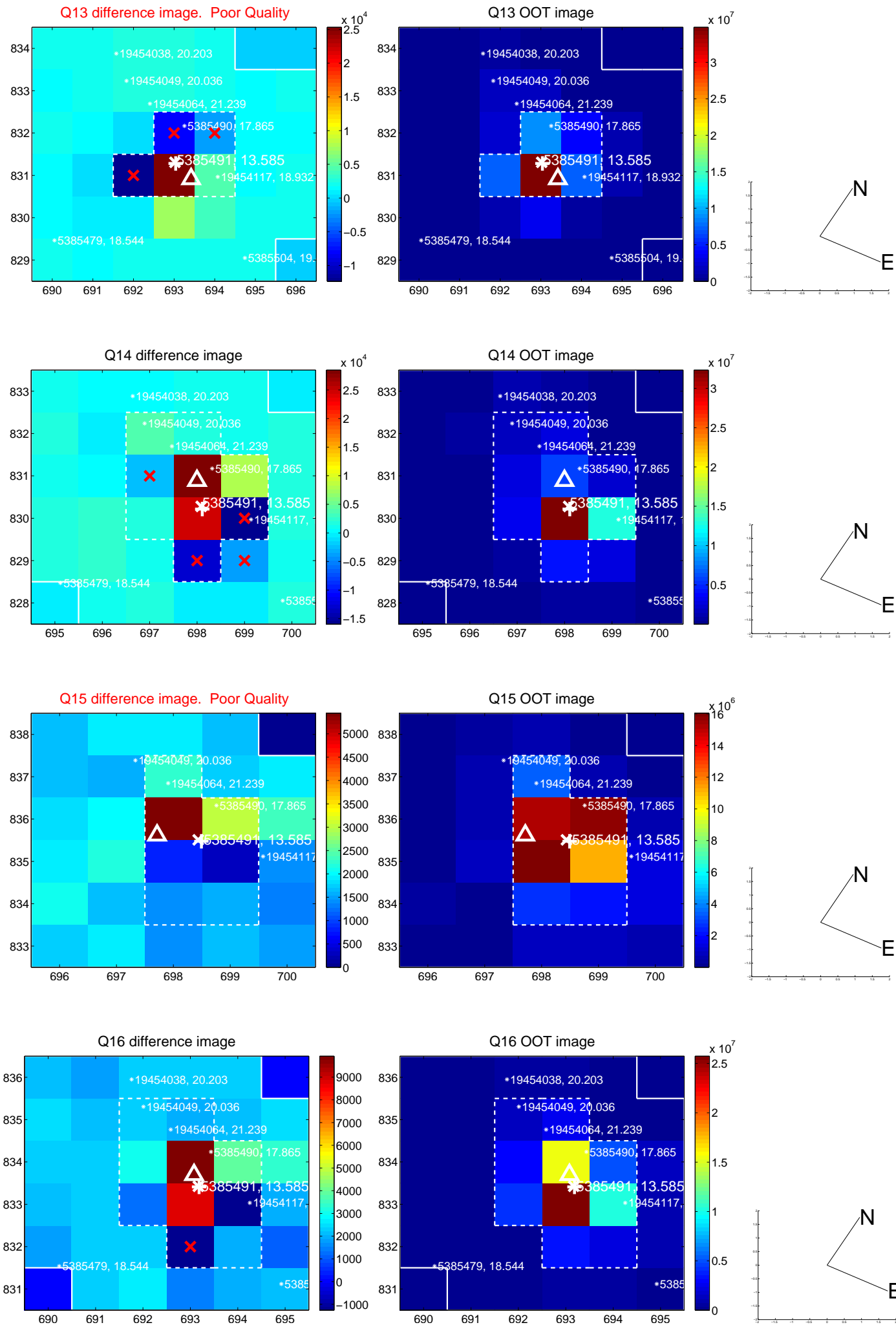
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



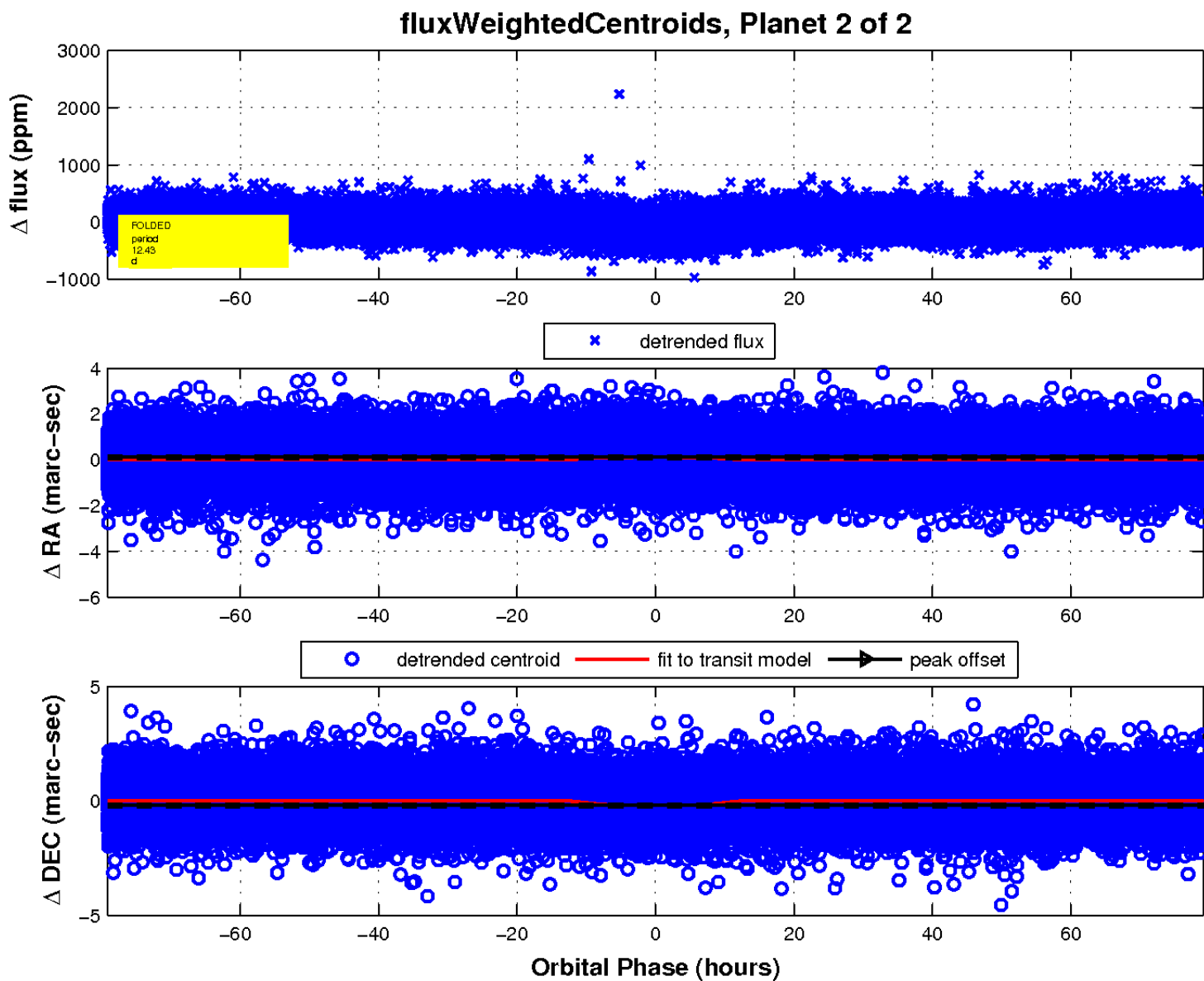
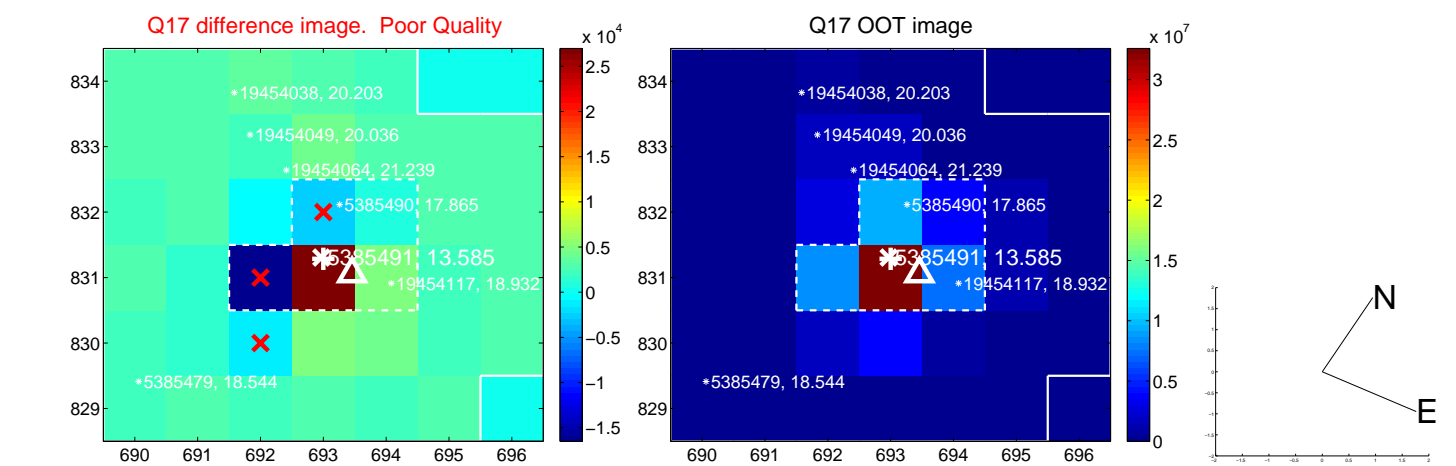
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

