

KIC 011409698

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})
011409698-01	OBS	7444.01	10.267827	139.176911	247487.3	6.031	17241.7	12716.3	1.44	6664	73.69	393.95
011409698-02	OBS	No	10.267827	132.530277	27100.4	5.574	2117.8	1708.8	1.44	6664	26.10	393.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011409698-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—HAS_SEC_TCE
011409698-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

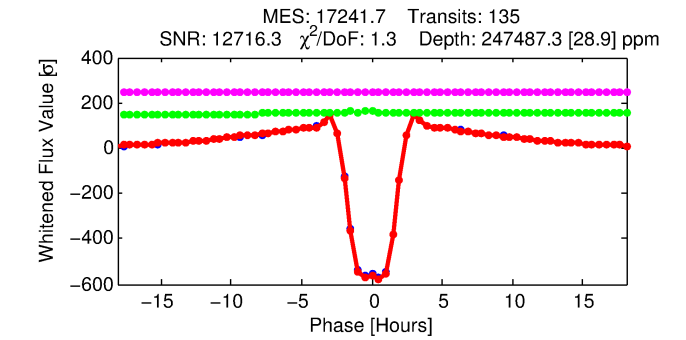
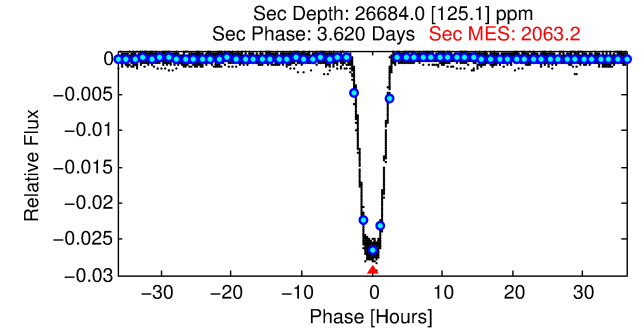
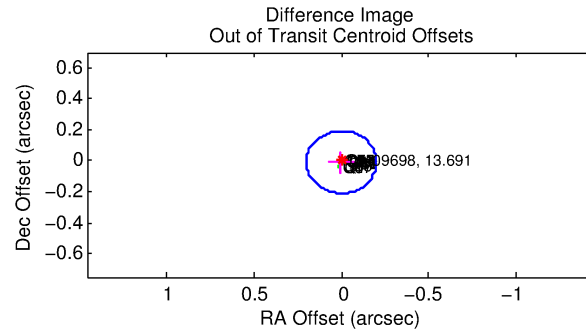
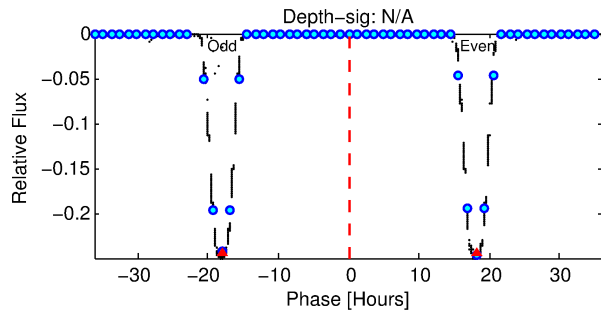
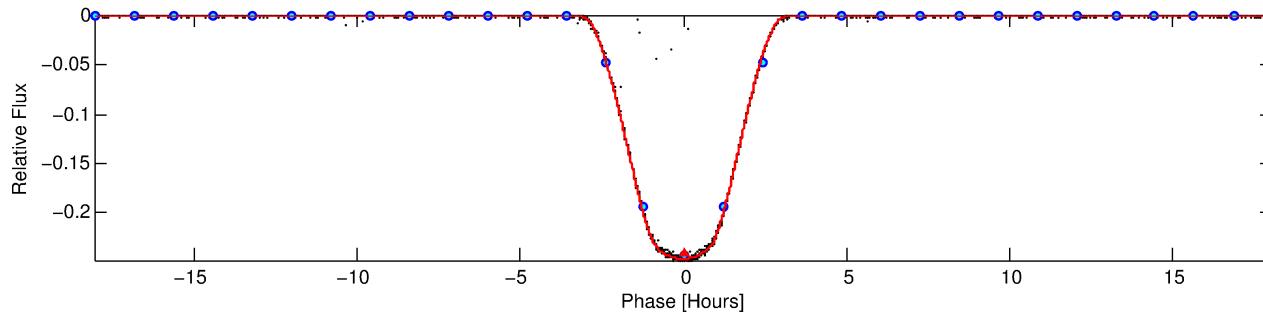
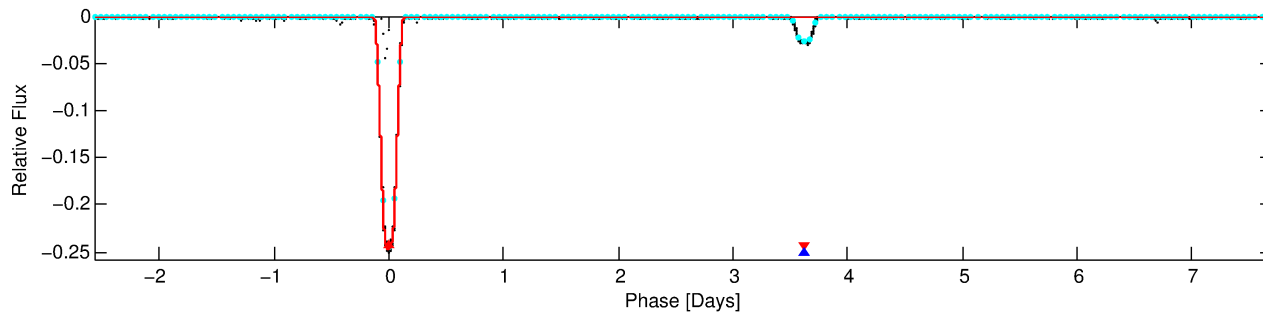
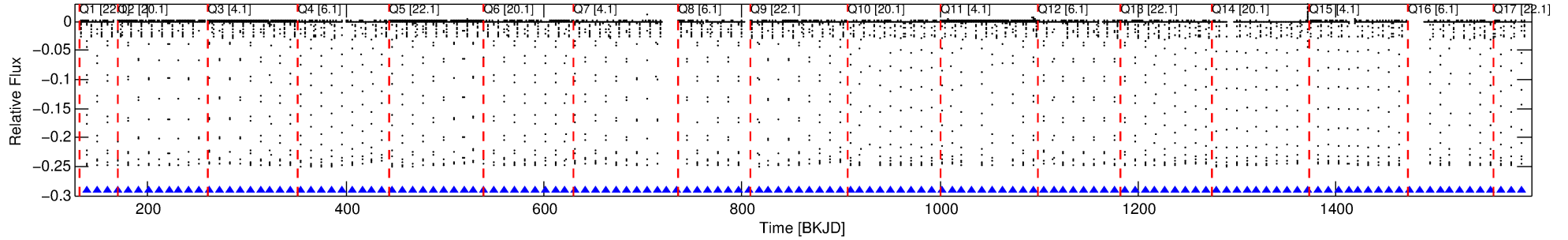
Ephemeris Match Information For 011409698-01

No Significant Match Found

DV One-Page Summary

KIC: 11409698 Candidate: 1 of 2 Period: 10.268 d
KOI: K07444.01 Corr: 1.000

Kp: 13.69 R*: 1.44 Rs Teff: 6664.0 K Logg: 4.18 Fe/H: -0.420



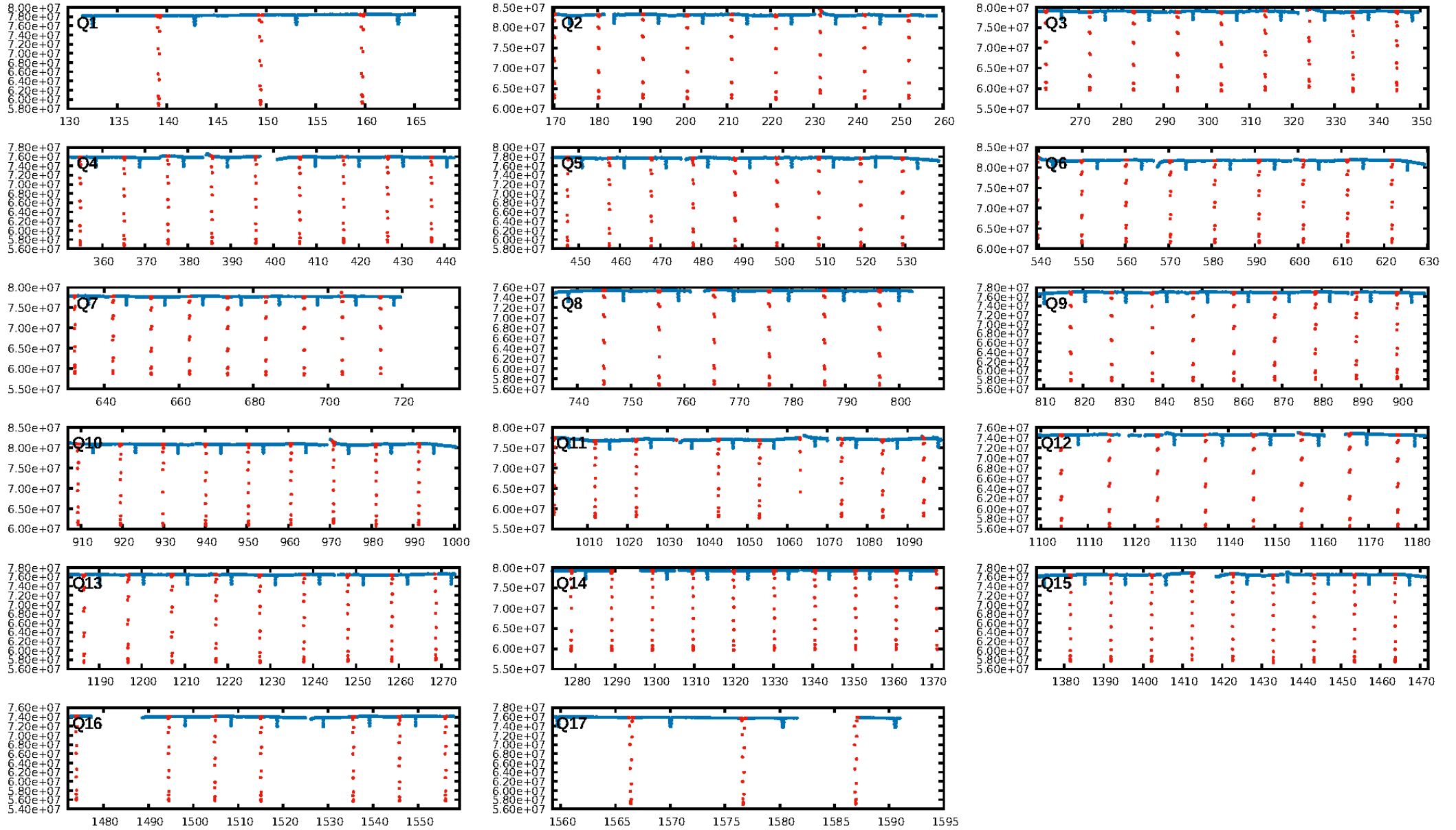
DV Fit Results:

Period = 10.26783 [0.00000] d
Epoch = 139.1769 [0.0000] BKJD
Rp/R* = 0.4690 [0.0000]
a/R* = 18.77 [0.00]
b = 0.28 [0.00]
Seff = 393.95 [144.53]
Teff = 1136 [104] K
Rp = 73.69 [20.98] Re
a = 0.0964 [0.0229] AU
Ag = 25.14 [8.59] [2.81σ]
Teffp = 3933 [132] K [16.66σ]

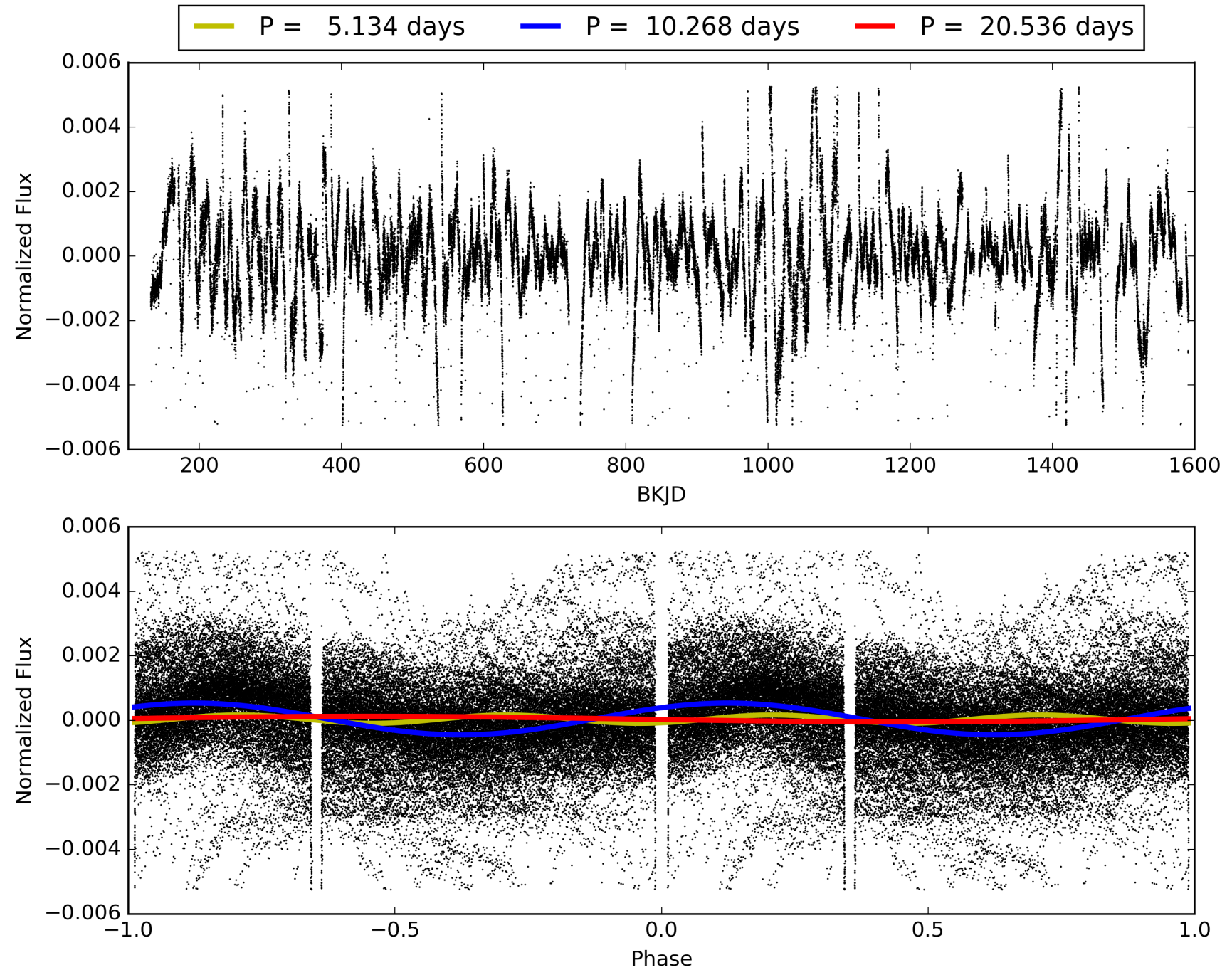
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [129/129]
GhostDiagnostic-chr: 5.175
Centroid-sig: 0.0%
Centroid-so: 0.130 arcsec [303.85σ]
OotOffset-rm: 0.009 arcsec [0.14σ]
KicOffset-rm: 0.074 arcsec [1.09σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 011409698-01, PDC Light Curves

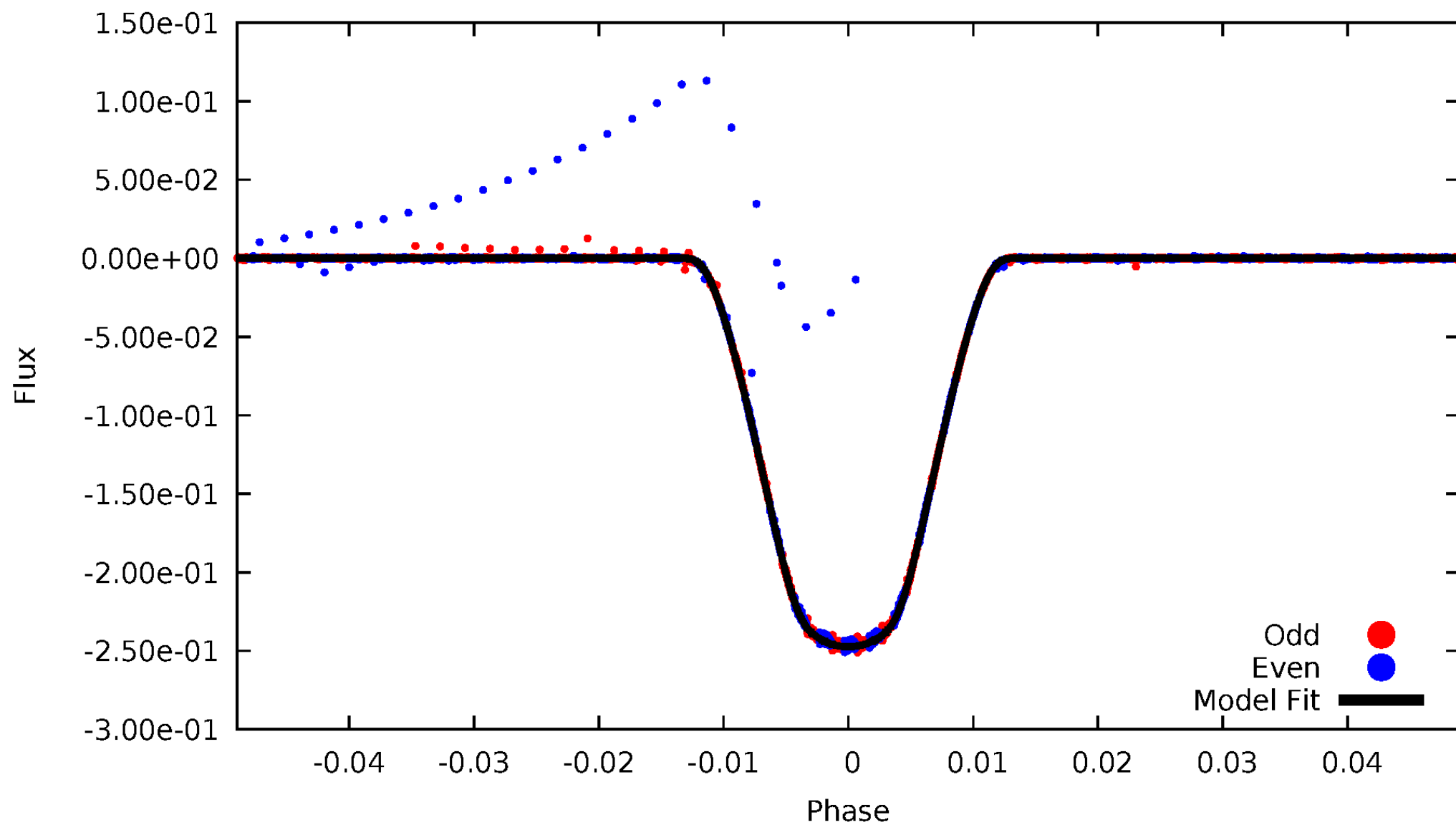


TCE 011409698-01



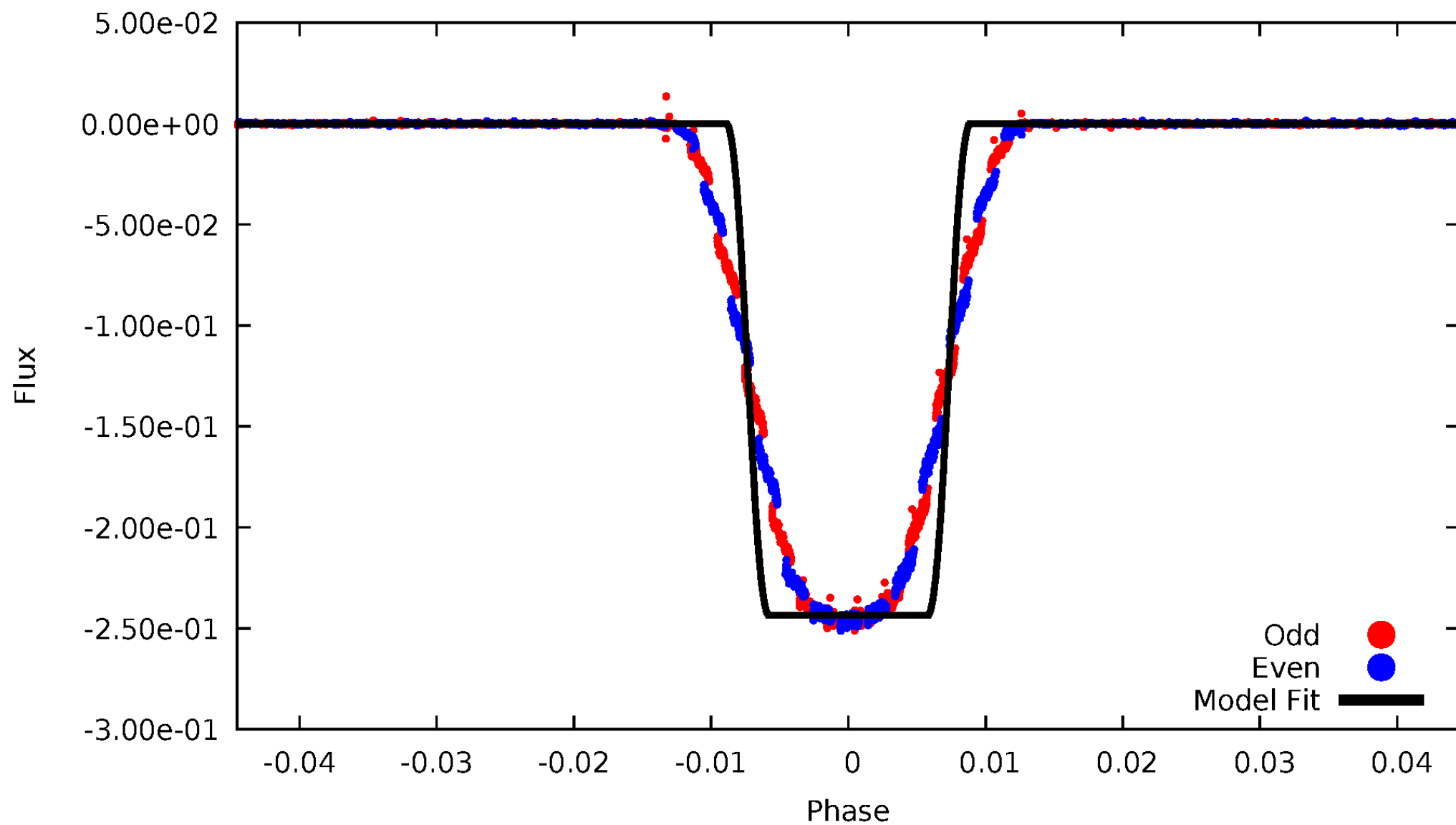
DV Odd/Even

TCE 011409698-01



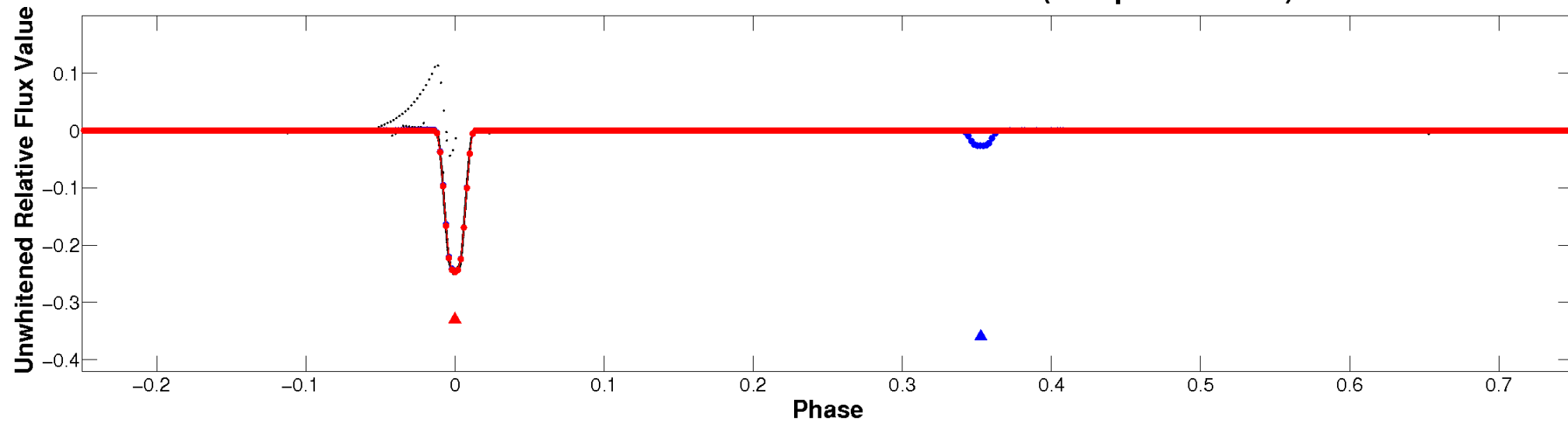
ALT Odd/Even

TCE 011409698-01

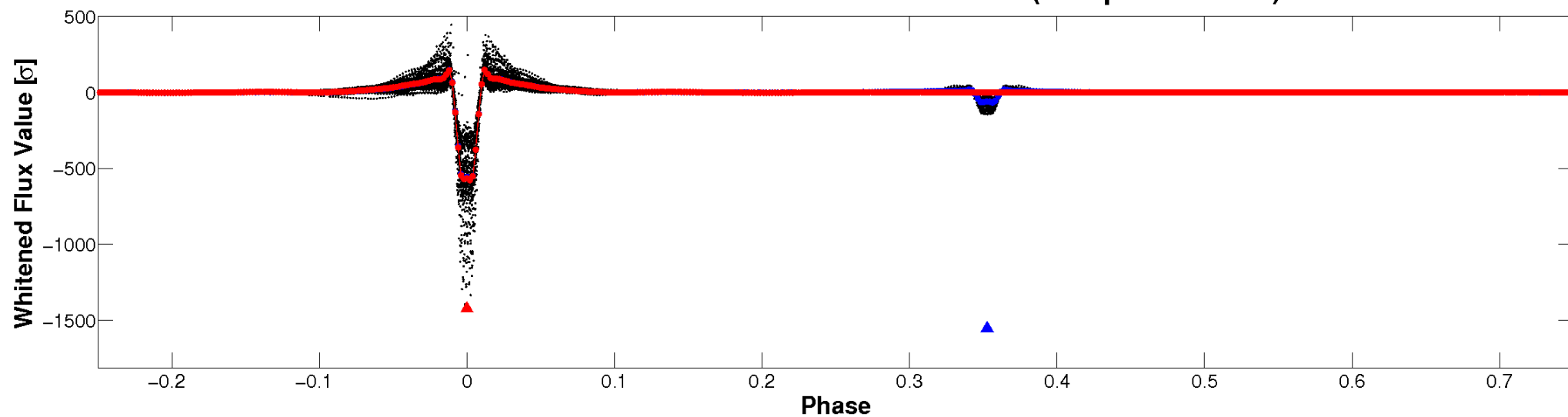


Non-Whitened Vs. Whitened Light Curve

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

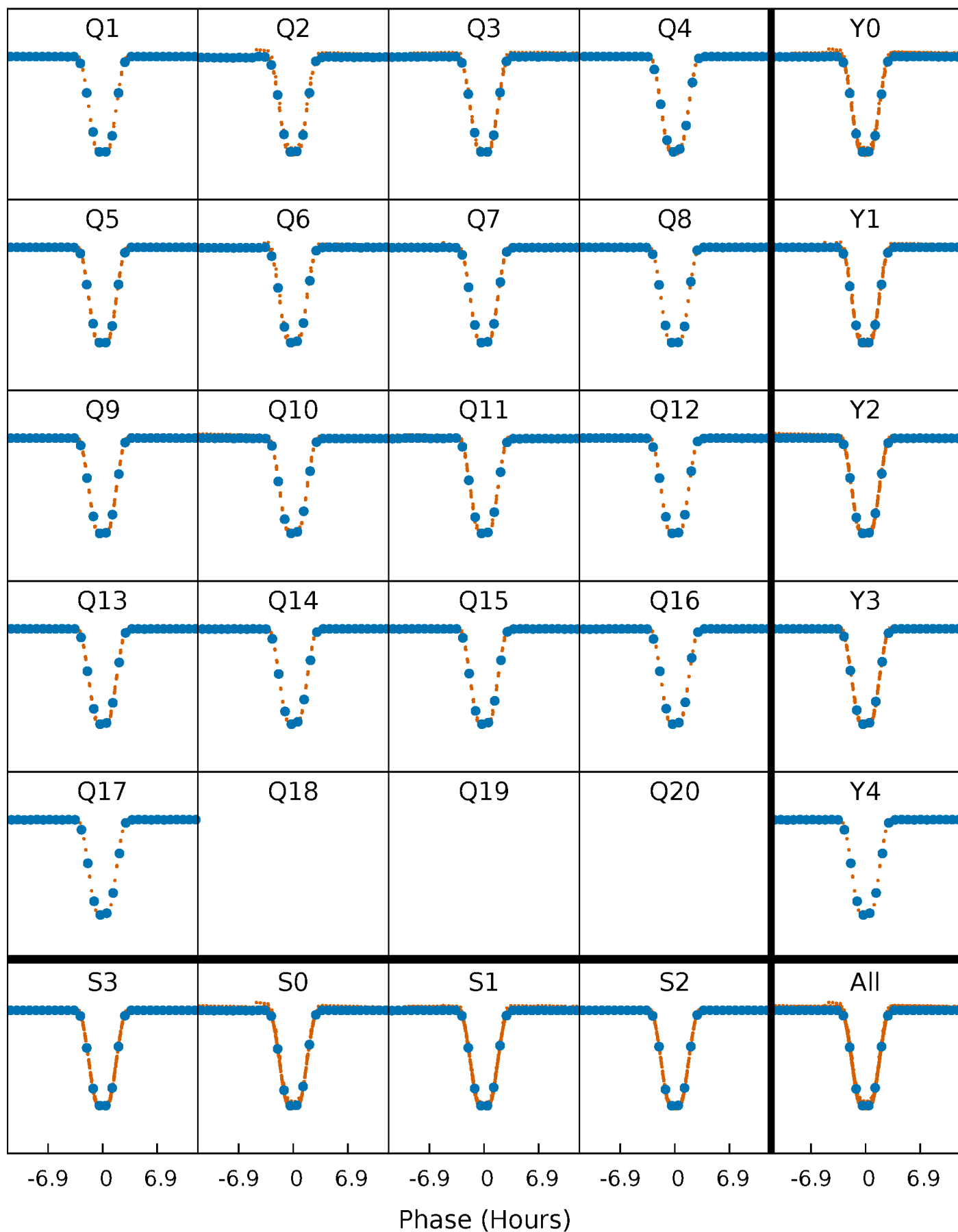


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



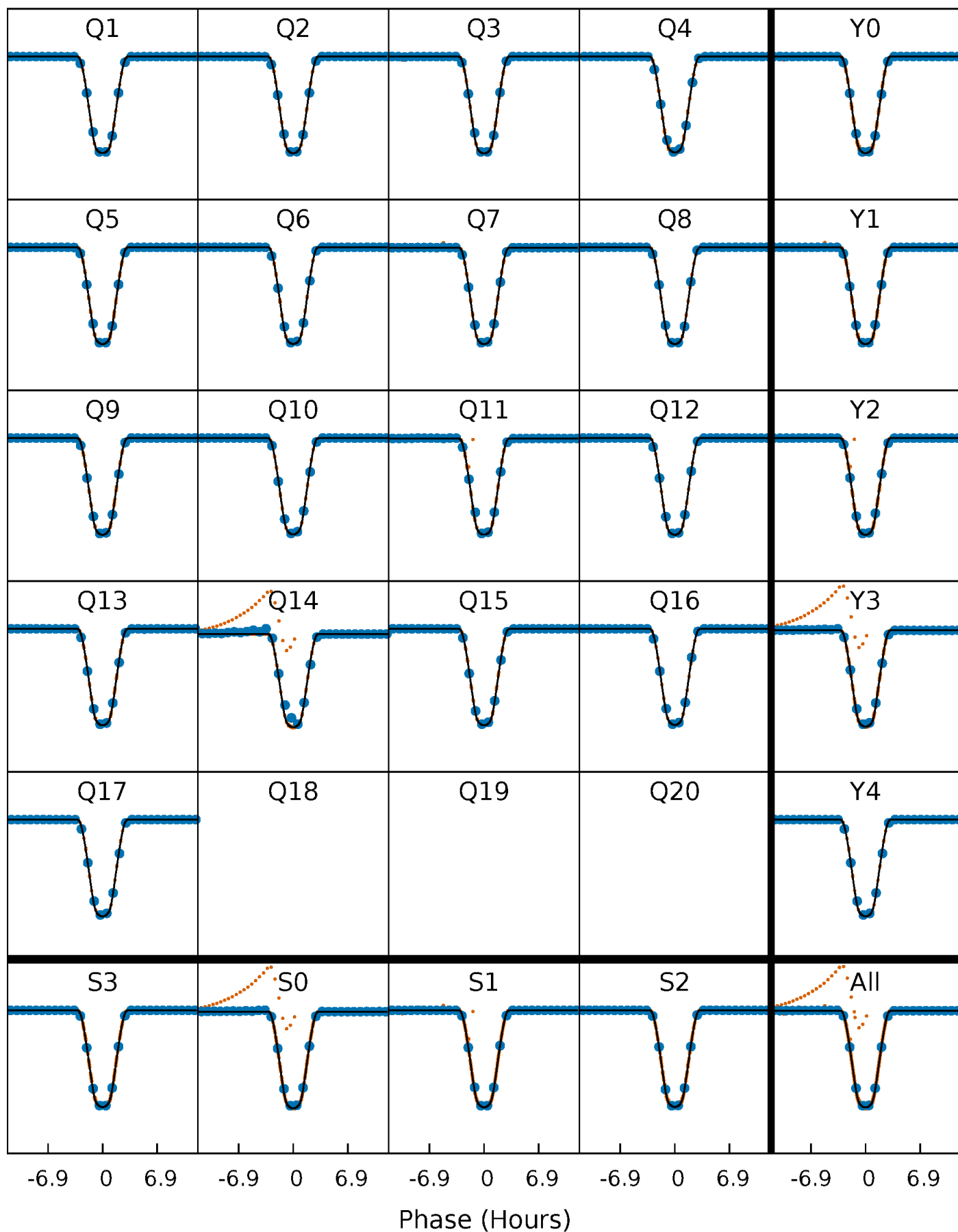
PDC Quarter-Phased Transit Curves

TCE 011409698-01 P= 10.267827 Days $T_0=139.176911$ (BKJD)



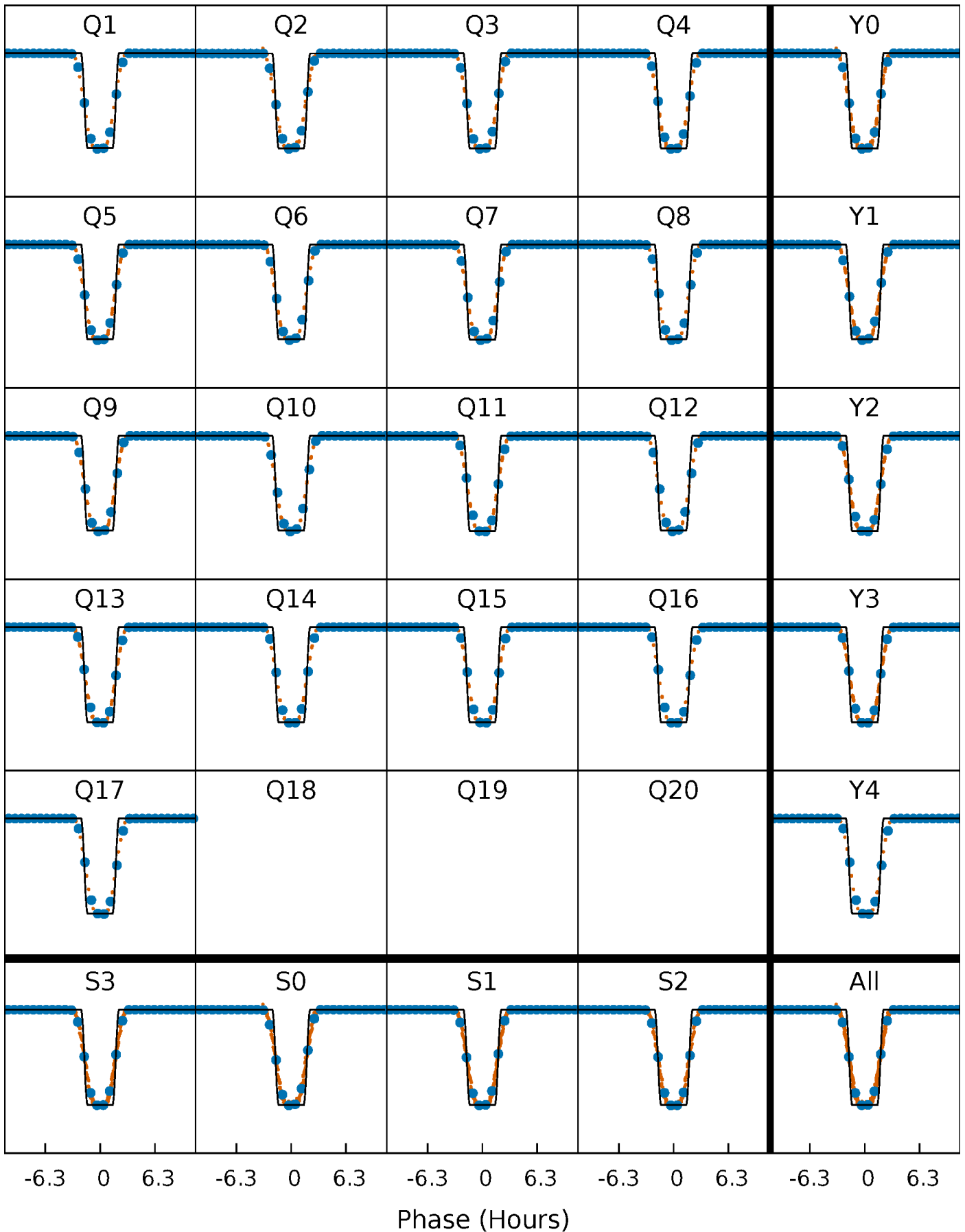
DV Quarter-Phased Transit Curves

TCE 011409698-01 P= 10.267827 Days $T_0=139.176911$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

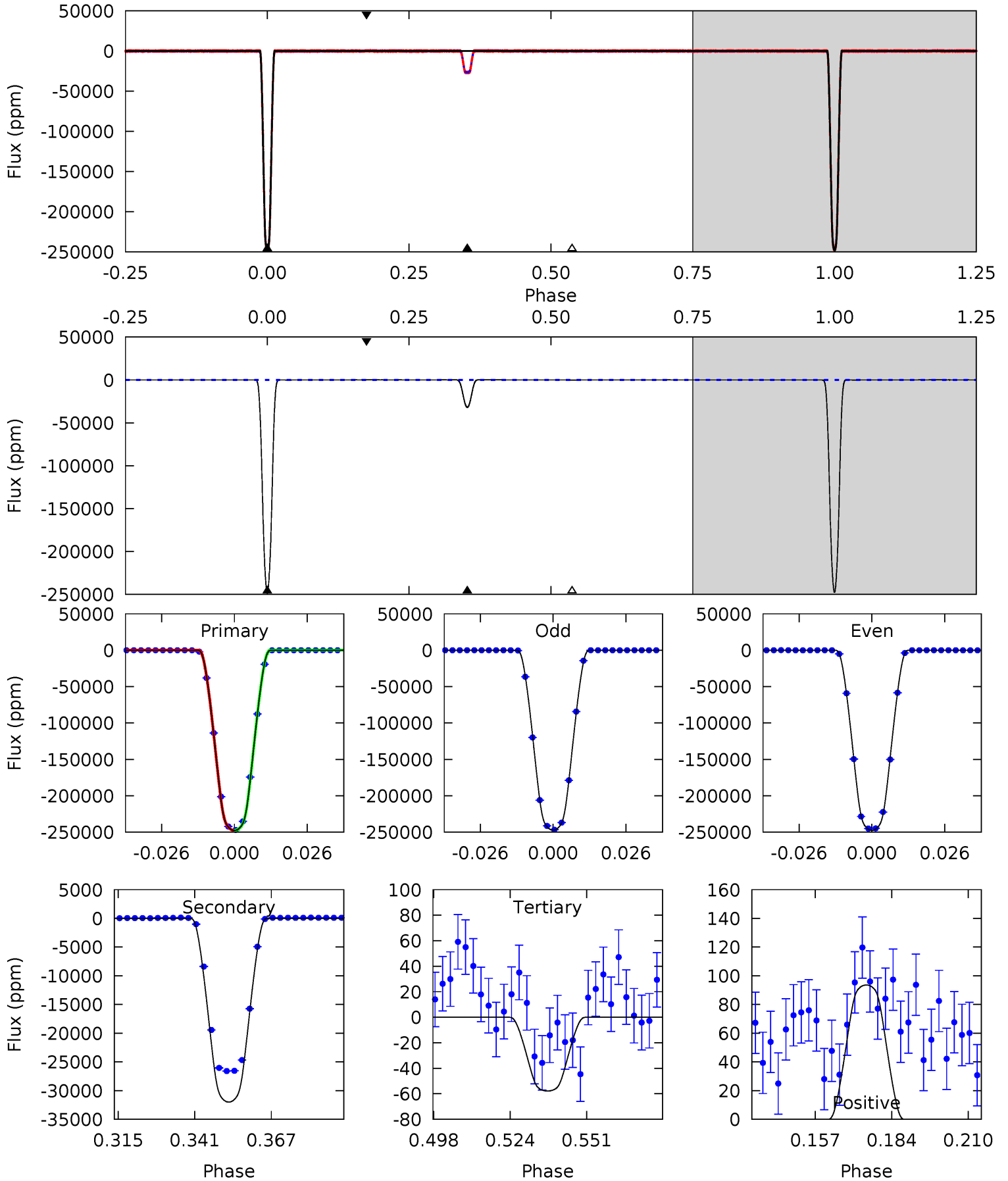
TCE 011409698-01 P= 10.267776 Days $T_0=139.180851$ (BKJD)



DV Model-Shift Uniqueness Test

011409698-01, P = 10.267827 Days, E = 128.909084 Days

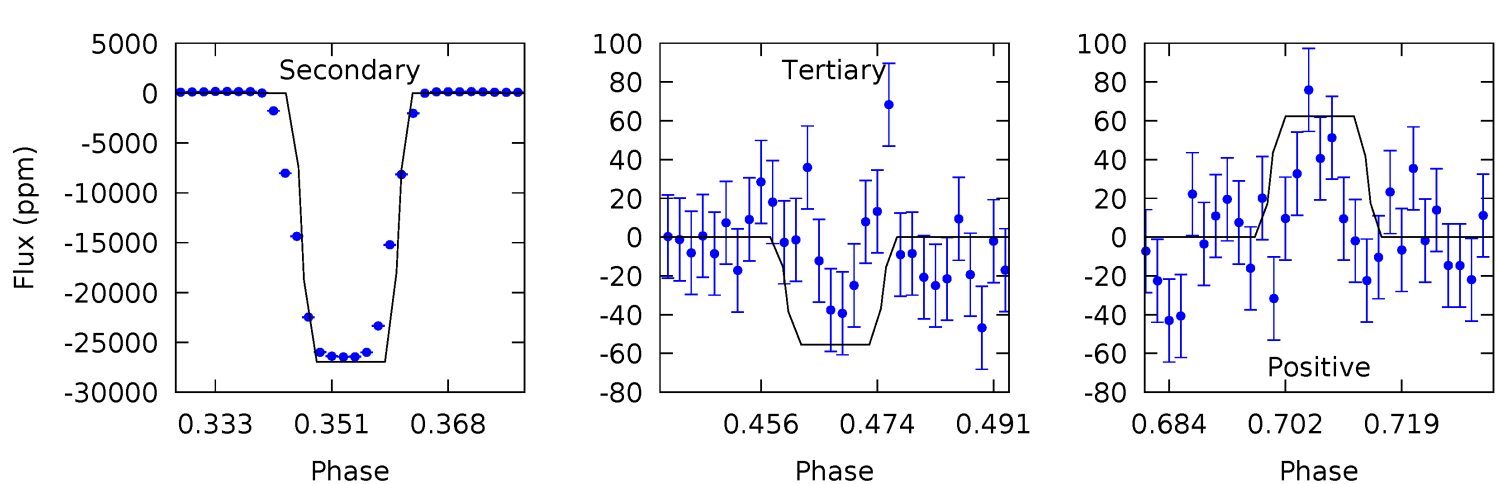
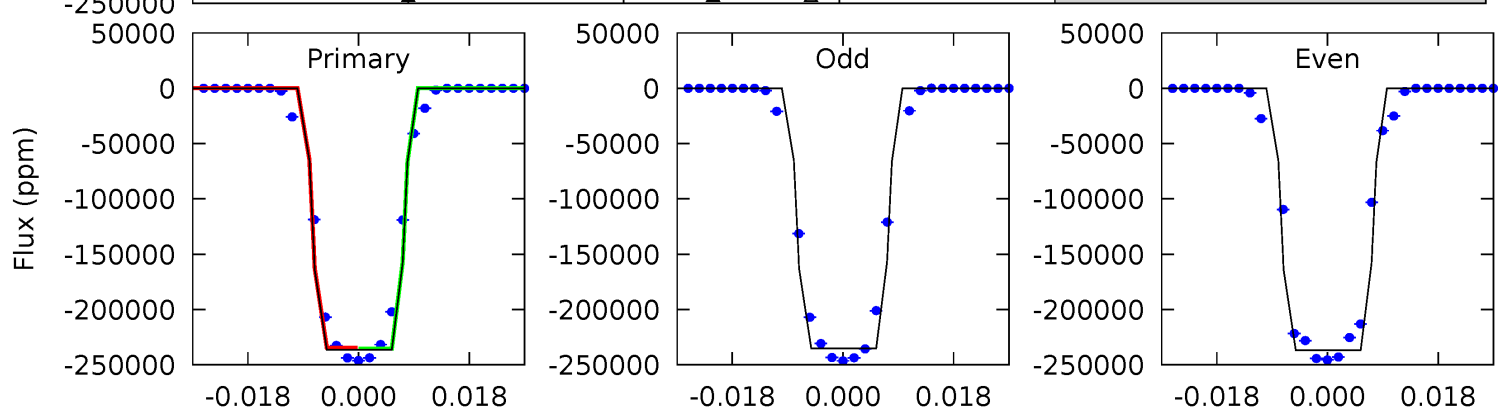
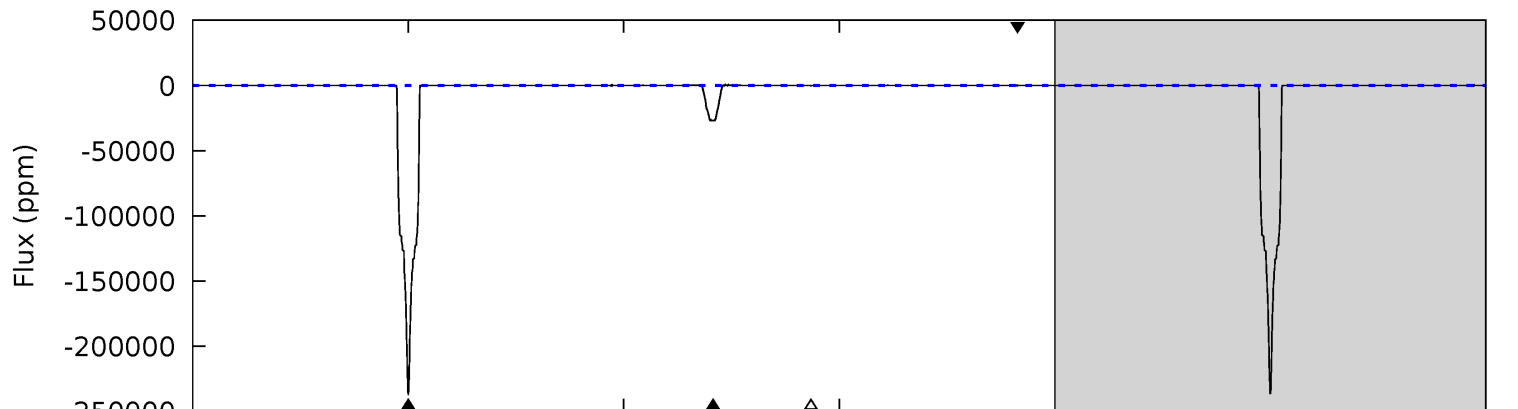
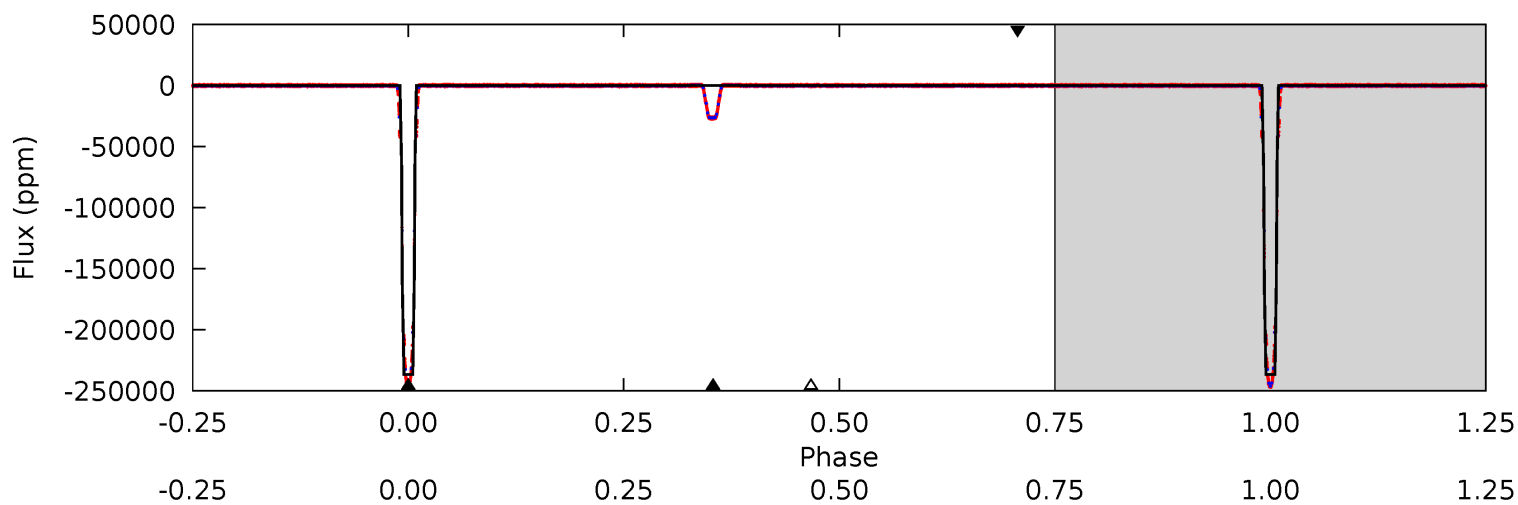
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32180	4159	7.52	12.2	4.84	2.22	4.69	32172	32168	4151	4147	22.0	0.99	0.00	0



Alt Model-Shift Uniqueness Test

011409698-01, P = 10.267776 Days, E = 128.913075 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13944	1590	3.26	3.68	4.92	2.38	1.50	13941	13941	1587	1586	55.8	1.00	0.00	0



Stellar Parameters For KIC 011409698

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6664^{+162}_{-223}	$4.176^{+0.185}_{-0.167}$	$-0.420^{+0.250}_{-0.300}$	$1.440^{+0.410}_{-0.336}$	$1.135^{+0.178}_{-0.146}$	$0.535^{+0.603}_{-0.248}$
	+2%/-3%	+4%/-4%	+60%/-71%	+28%/-23%	+16%/-13%	+113%/-46%
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 011409698-01 / KOI 7444.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-31997 ± 8	$73.57^{+10.79}_{-9.48}$	1580^{+110}_{-114}	4356^{+71}_{-107}	31^{+10}_{-7}
Alt.	-26967 ± 17	$77.30^{+12.76}_{-9.46}$	1580^{+118}_{-118}	4125^{+72}_{-97}	24^{+7}_{-6}

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

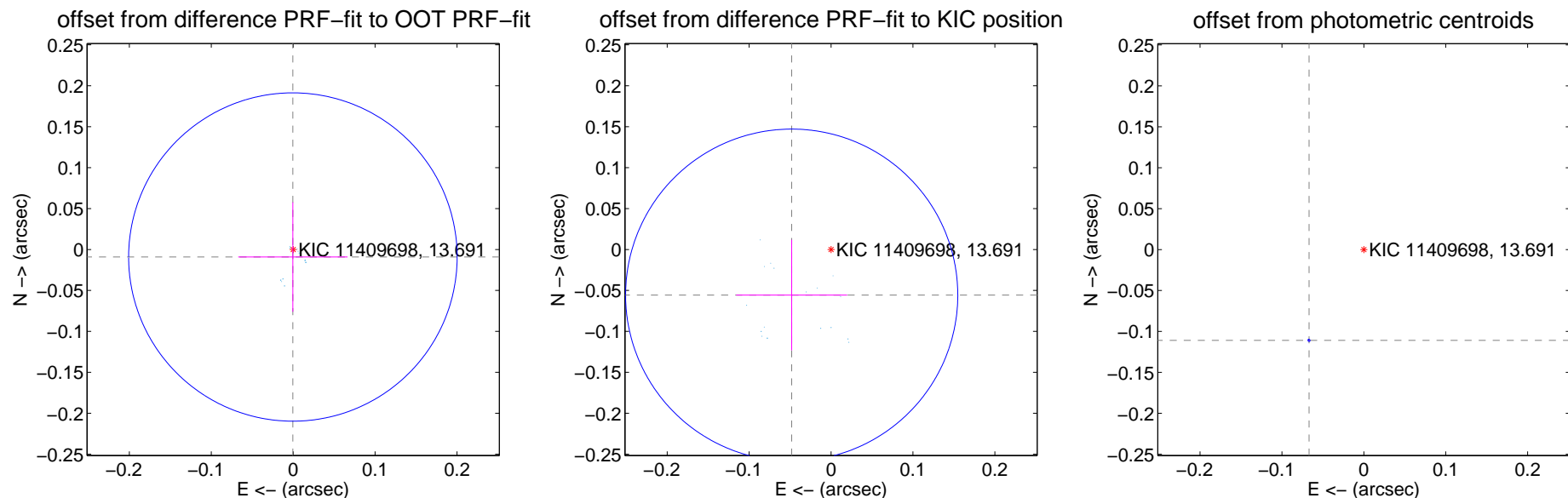
DV Centroid Data

Supplemental centroid analysis for 011409698-01. Kepler magnitude: 13.69. Transit SNR 12716.28

There are 17 quarters with good PRF difference image offsets

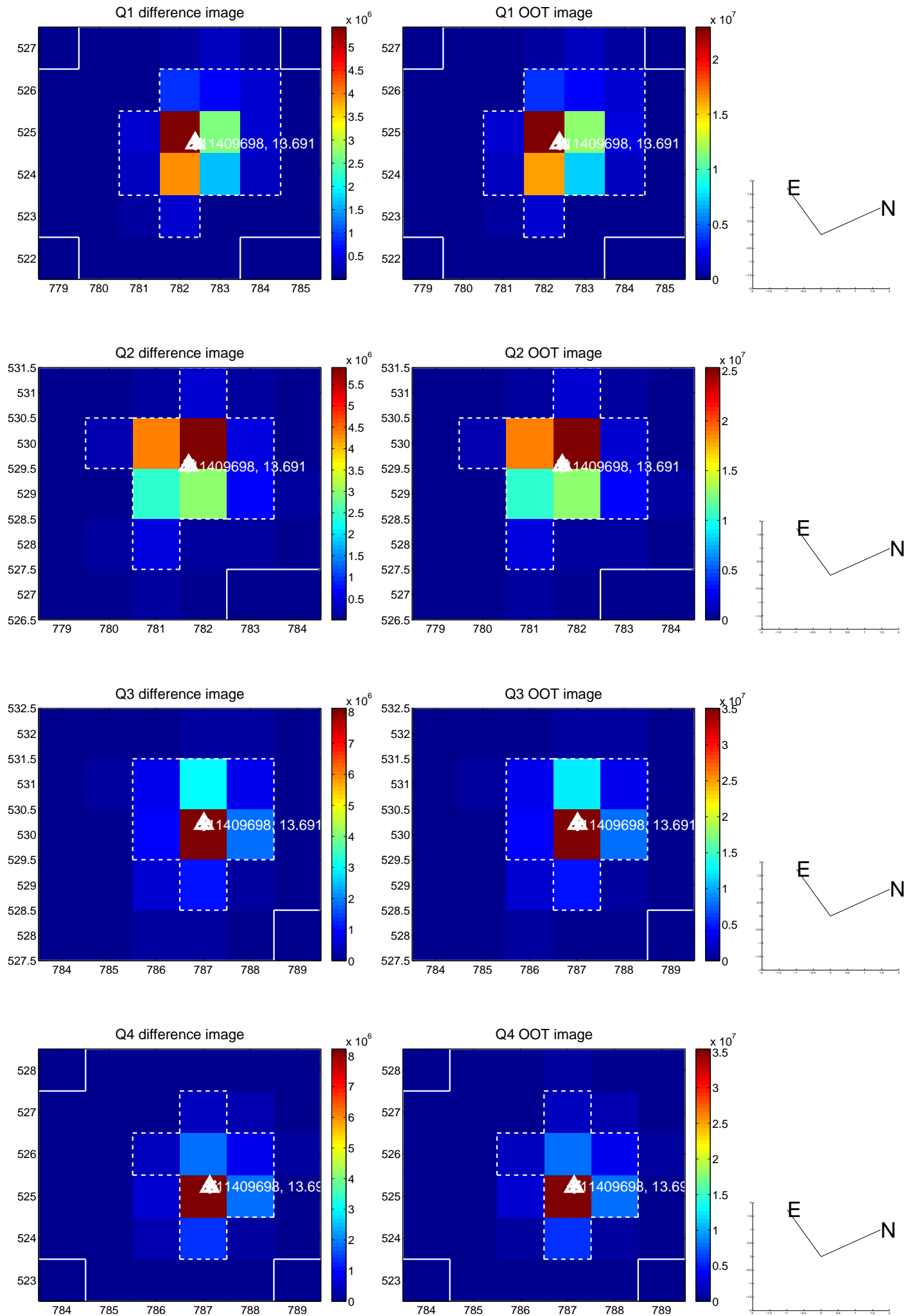
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.009 ± 0.067	0.14	0.000 ± 0.067	-0.009 ± 0.067
PRF-fit source offset from KIC position	0.074 ± 0.068	1.09	0.048 ± 0.068	-0.056 ± 0.067
photometric centroid source offset	0.13 ± 0.00	303.85	0.07 ± 0.00	-0.11 ± 0.00

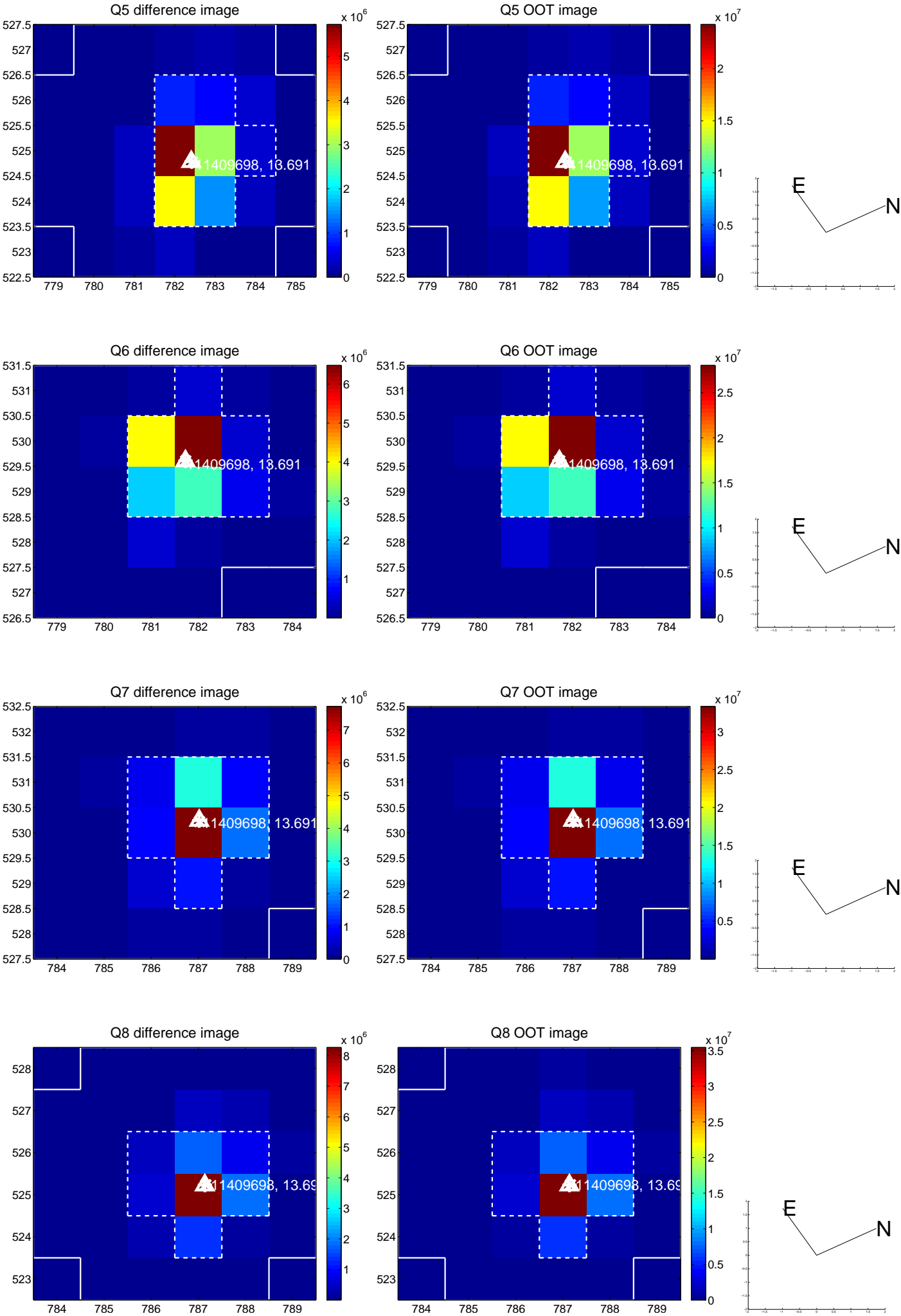


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

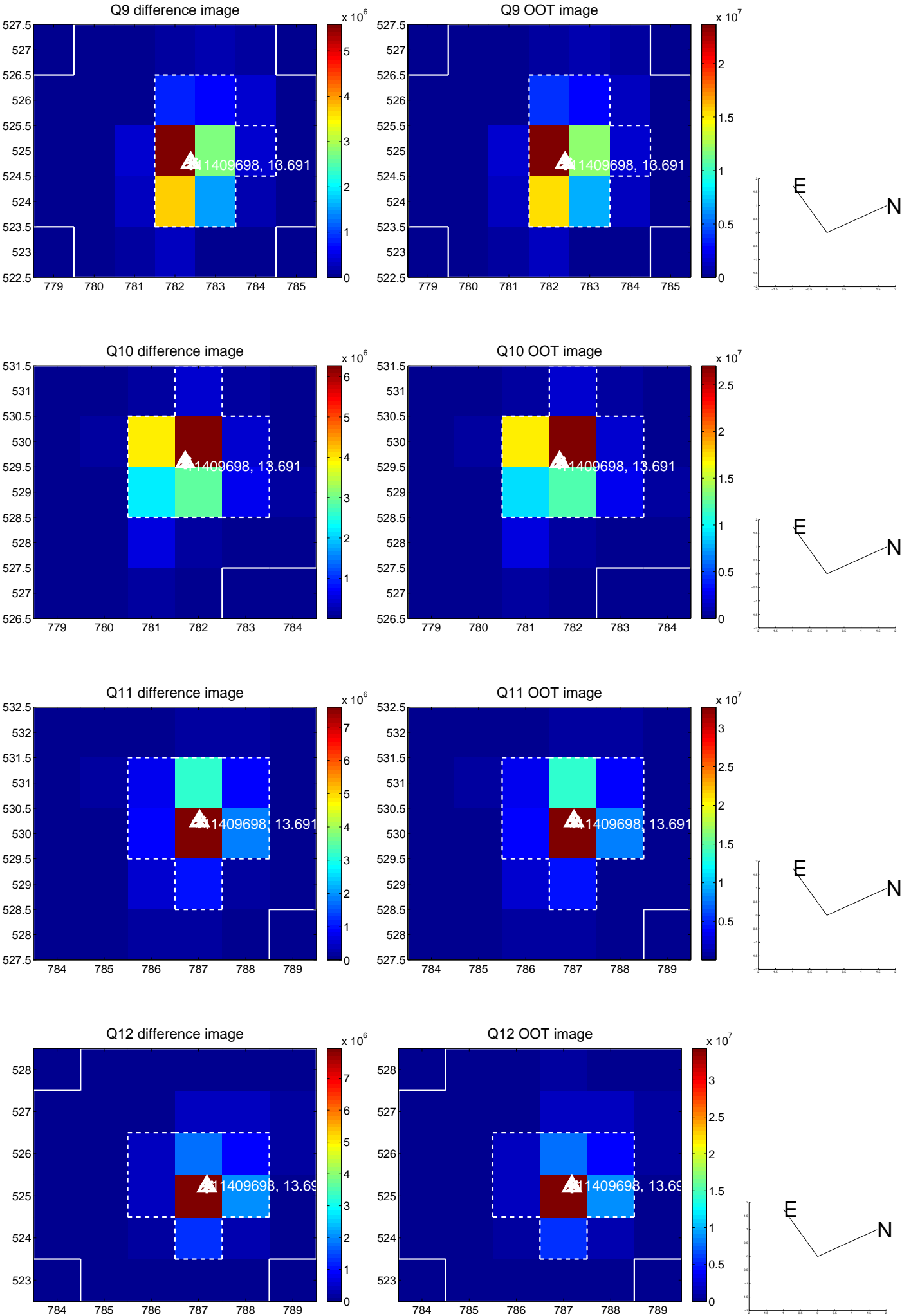
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



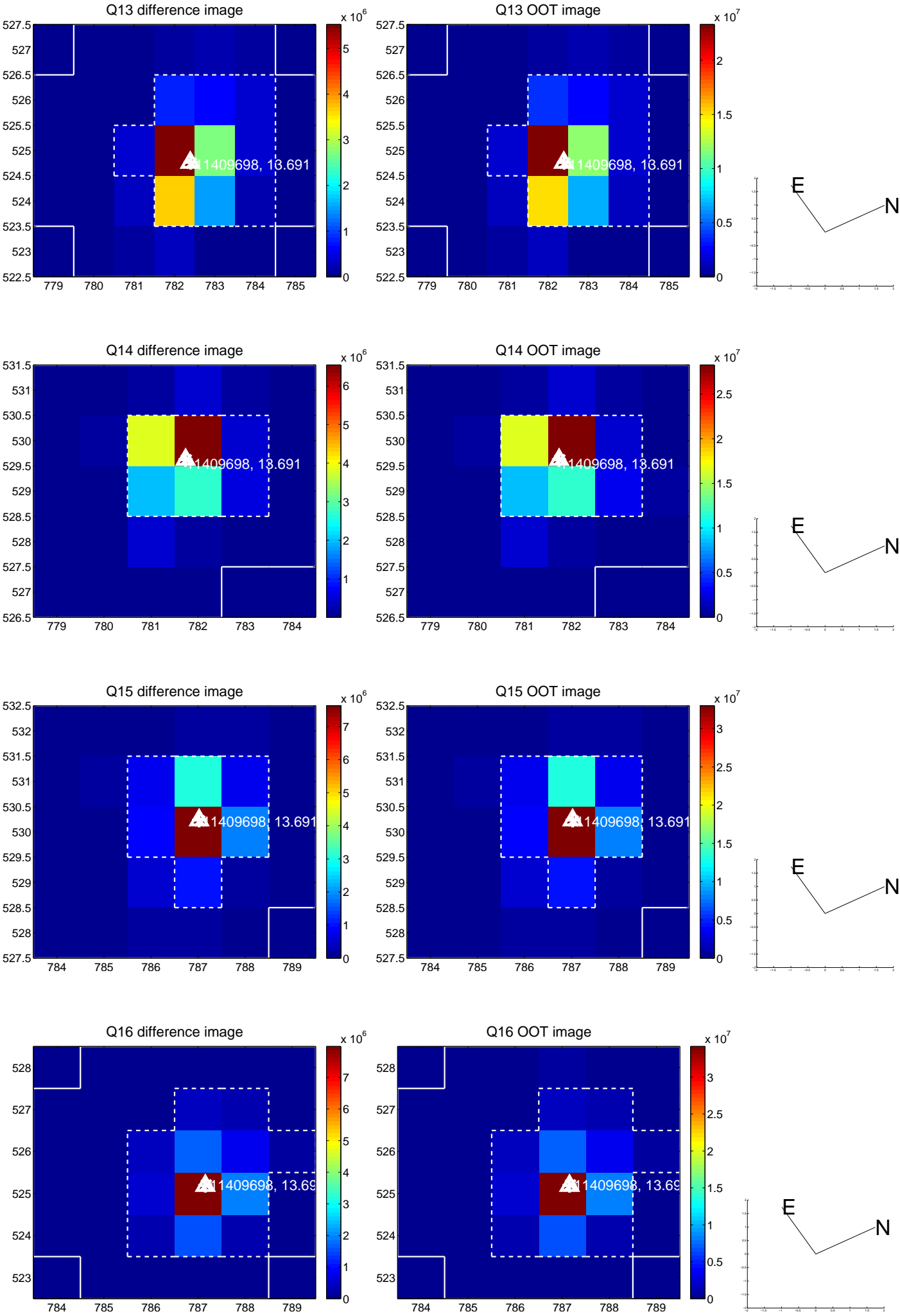
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



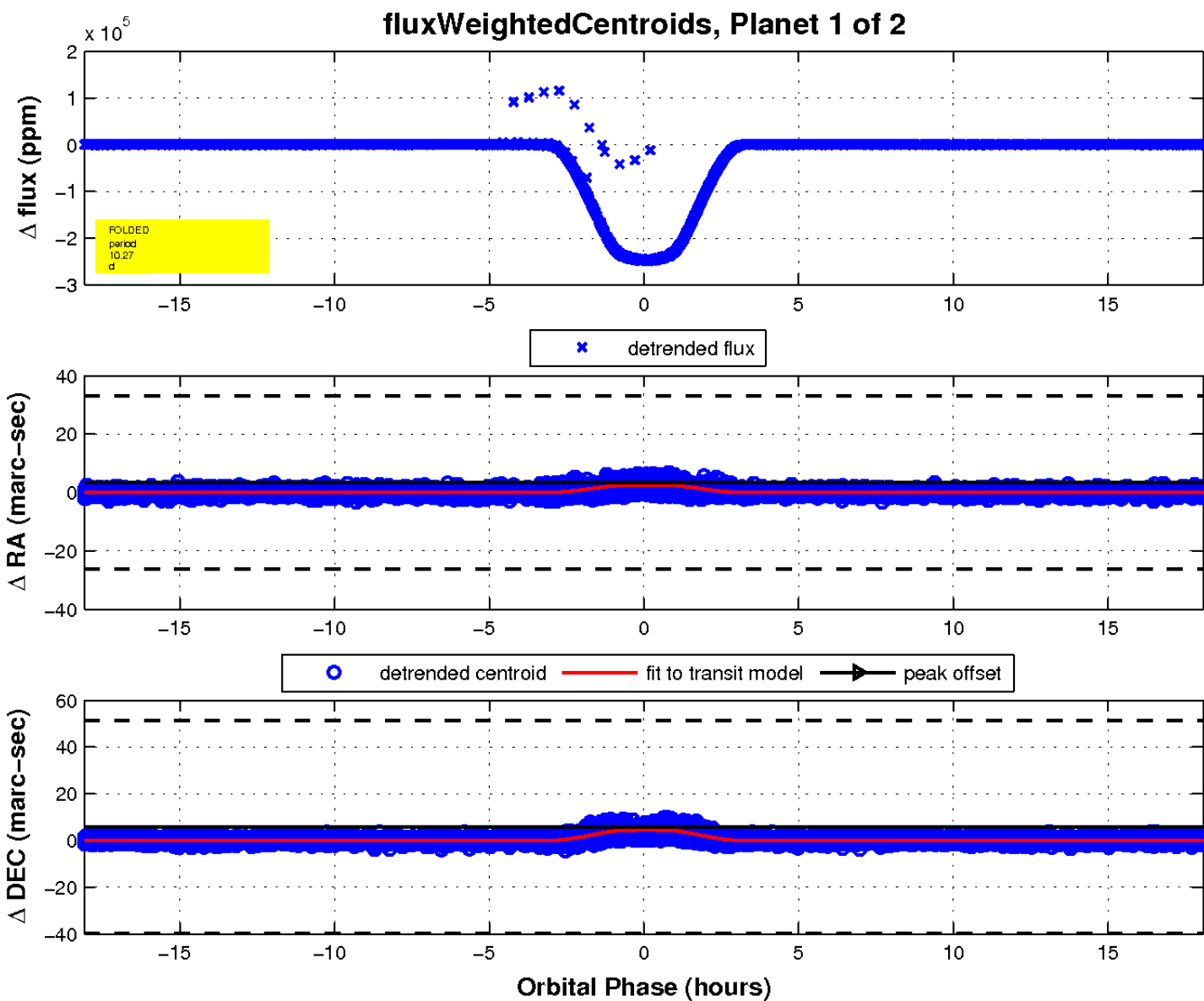
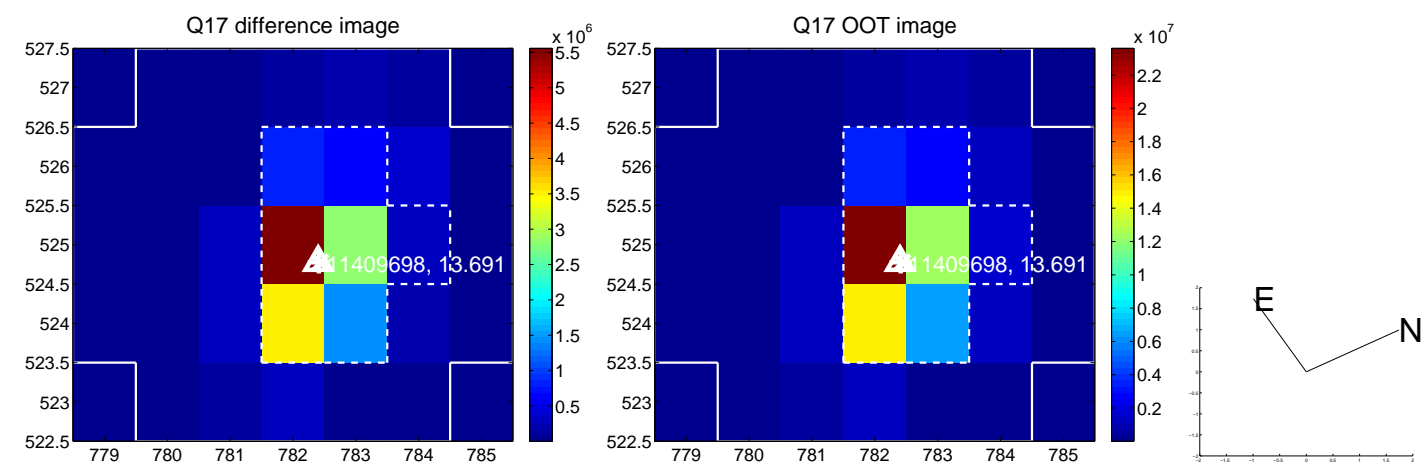
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

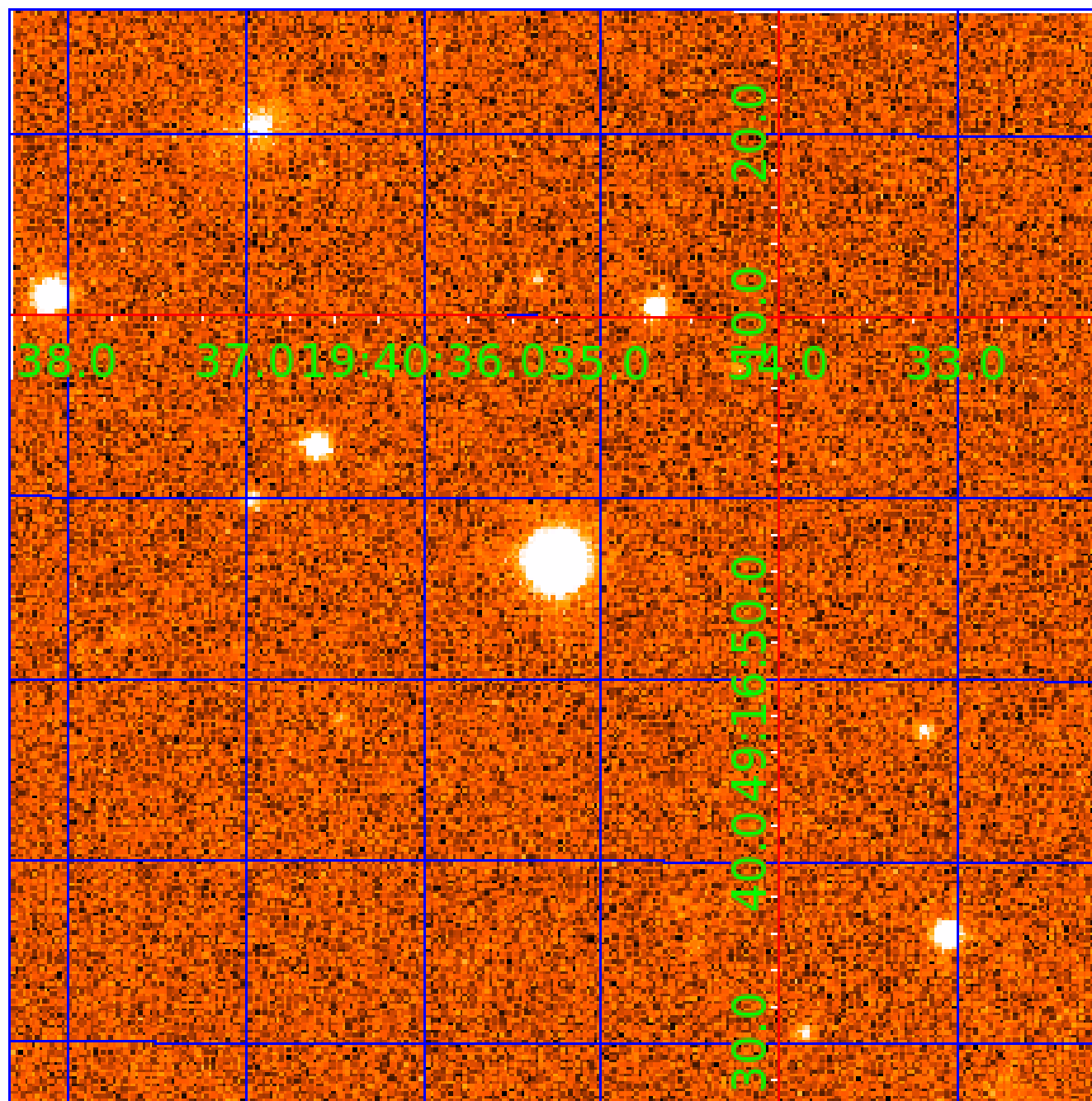


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011409698

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})
011409698-01	OBS	7444.01	10.267827	139.176911	247487.3	6.031	17241.7	12716.3	1.44	6664	73.69	393.95
011409698-02	OBS	No	10.267827	132.530277	27100.4	5.574	2117.8	1708.8	1.44	6664	26.10	393.95

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011409698-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—HAS_SEC_TCE
011409698-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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 011409698-02

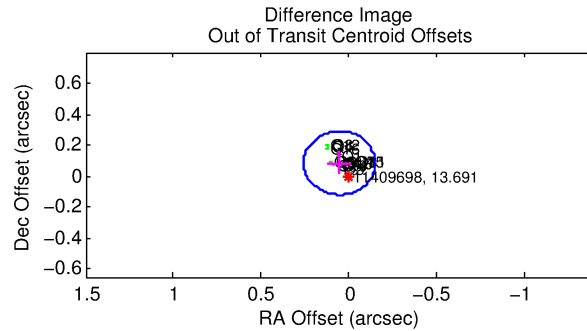
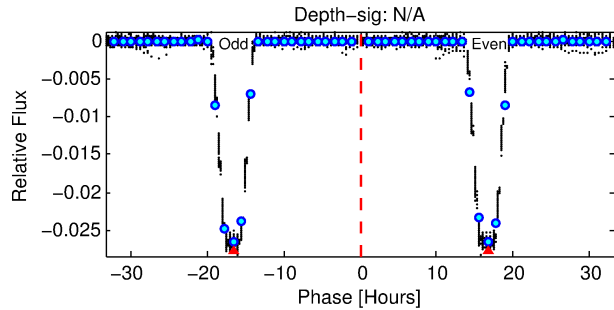
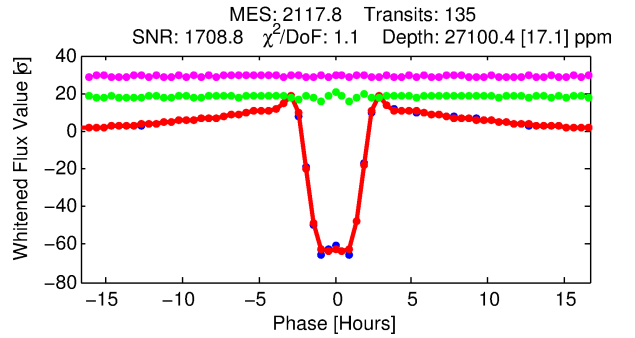
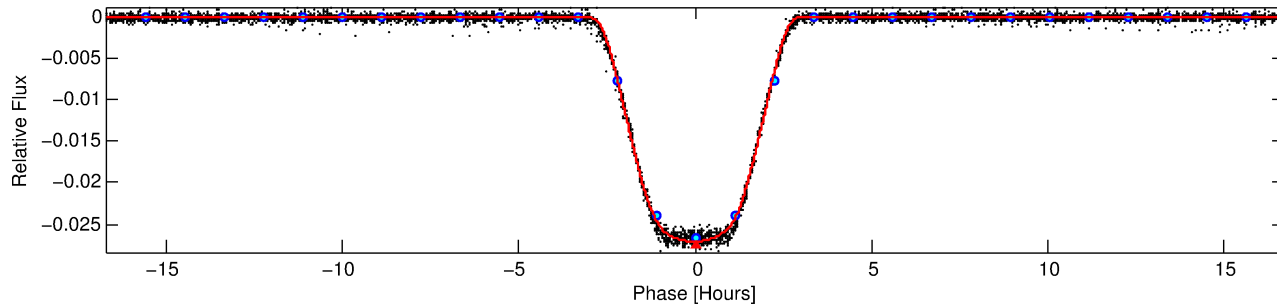
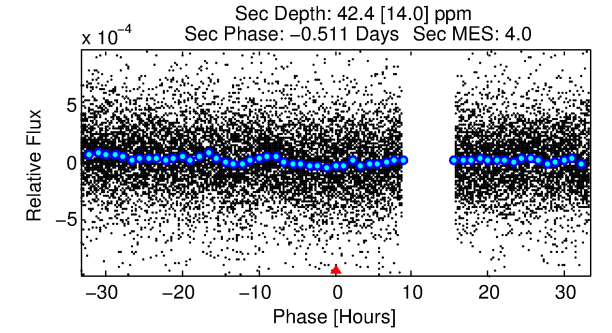
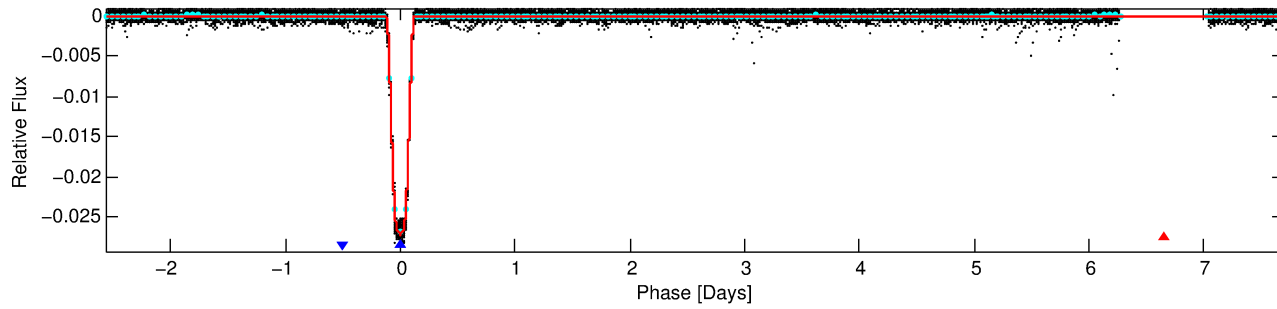
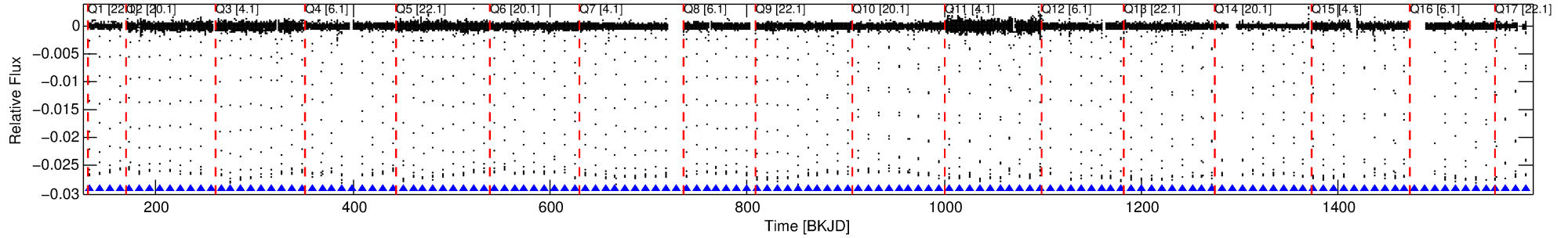
No Significant Match Found

DV One-Page Summary

KIC: 11409698 Candidate: 2 of 2 Period: 10.268 d

KOI: K07444 Corr: No Ephemeris Match

Kp: 13.69 R*: 1.44 Rs Teff: 6664.0 K Logg: 4.18 Fe/H: -0.420



DV Fit Results:

Period = 10.26783 [0.00000] d
Epoch = 132.5303 [0.0001] BKJD
Rp/R* = 0.1661 [0.0001]
a/R* = 12.33 [0.01]
b = 0.77 [0.00]
Seff = 393.95 [144.53]
Teq = 1136 [104] K
Rp = 26.10 [7.43] Re
a = 0.0964 [0.0229] AU
Ag = 0.32 [0.15] [-4.51σ]
Teff = 1319 [118] K [1.16σ]

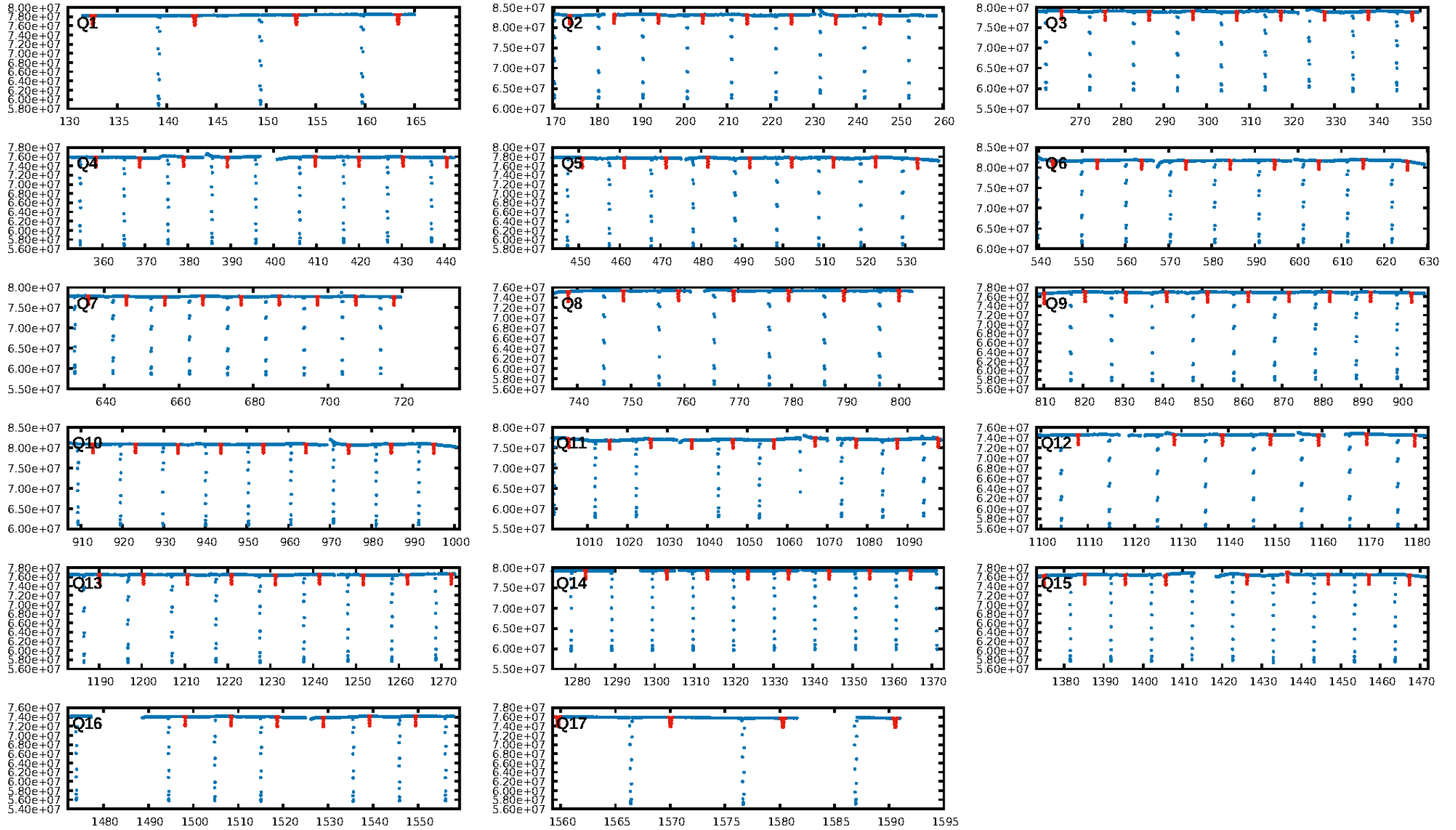
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.6%
ModelChiSquareGof-sig: 58.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [127/127]
GhostDiagnostic-chr: 4.507
Centroid-sig: 0.0%
Centroid-so: 0.126 arcsec [40.10σ]
OotOffset-rm: 0.102 arcsec [1.49σ]
KicOffset-rm: 0.120 arcsec [1.79σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

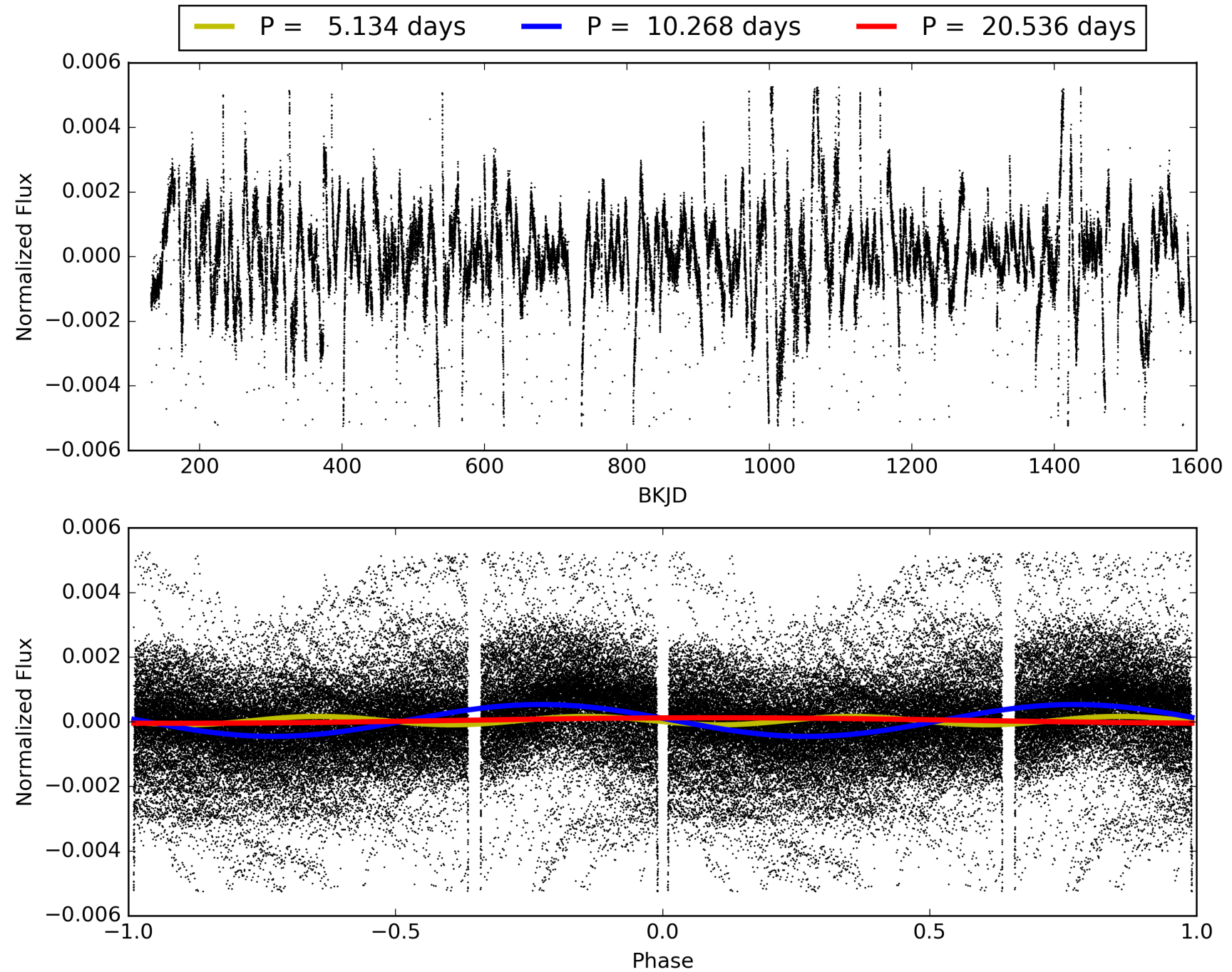
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:19:20 Z

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

TCE 011409698-02, PDC Light Curves

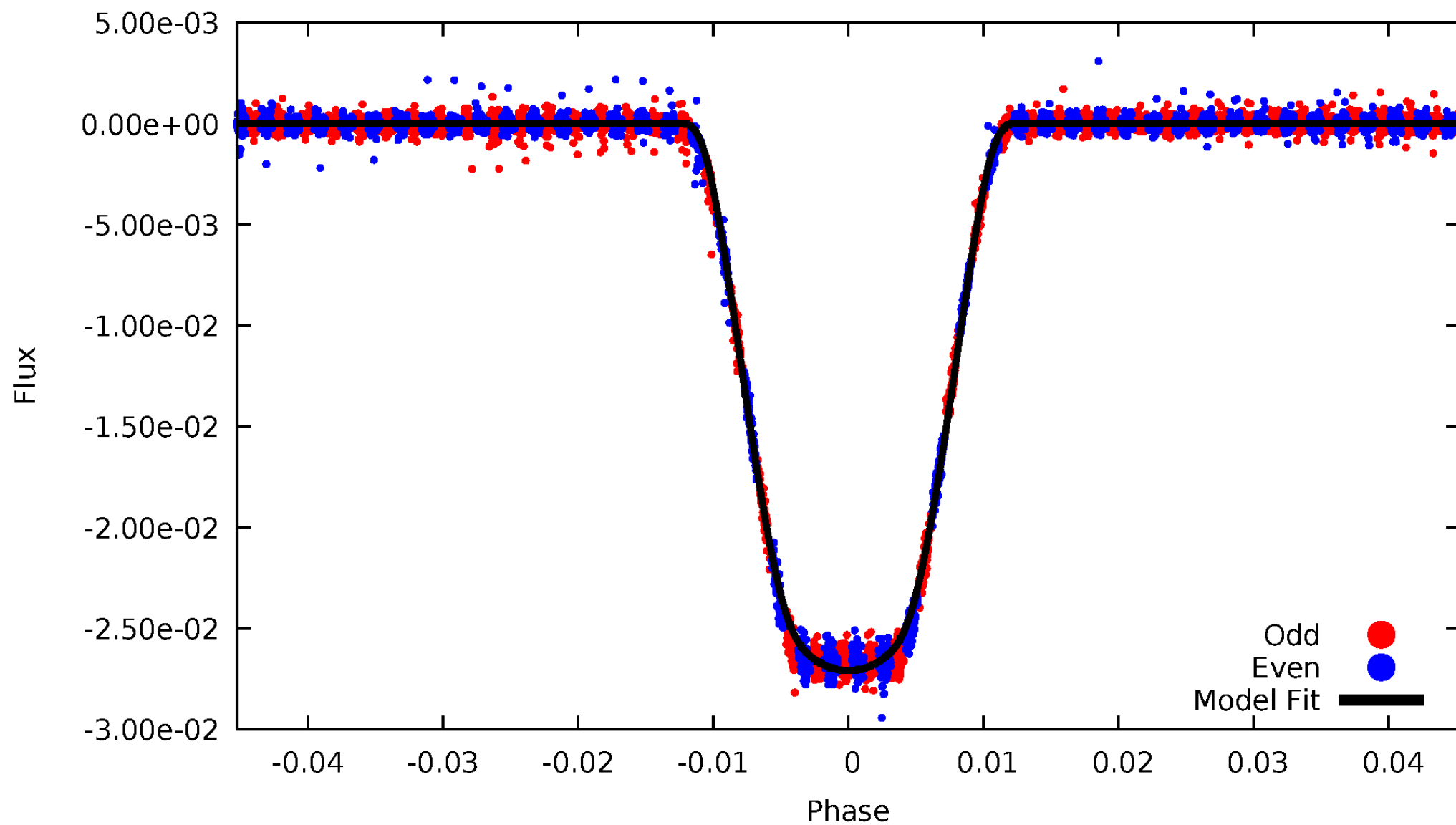


TCE 011409698-02



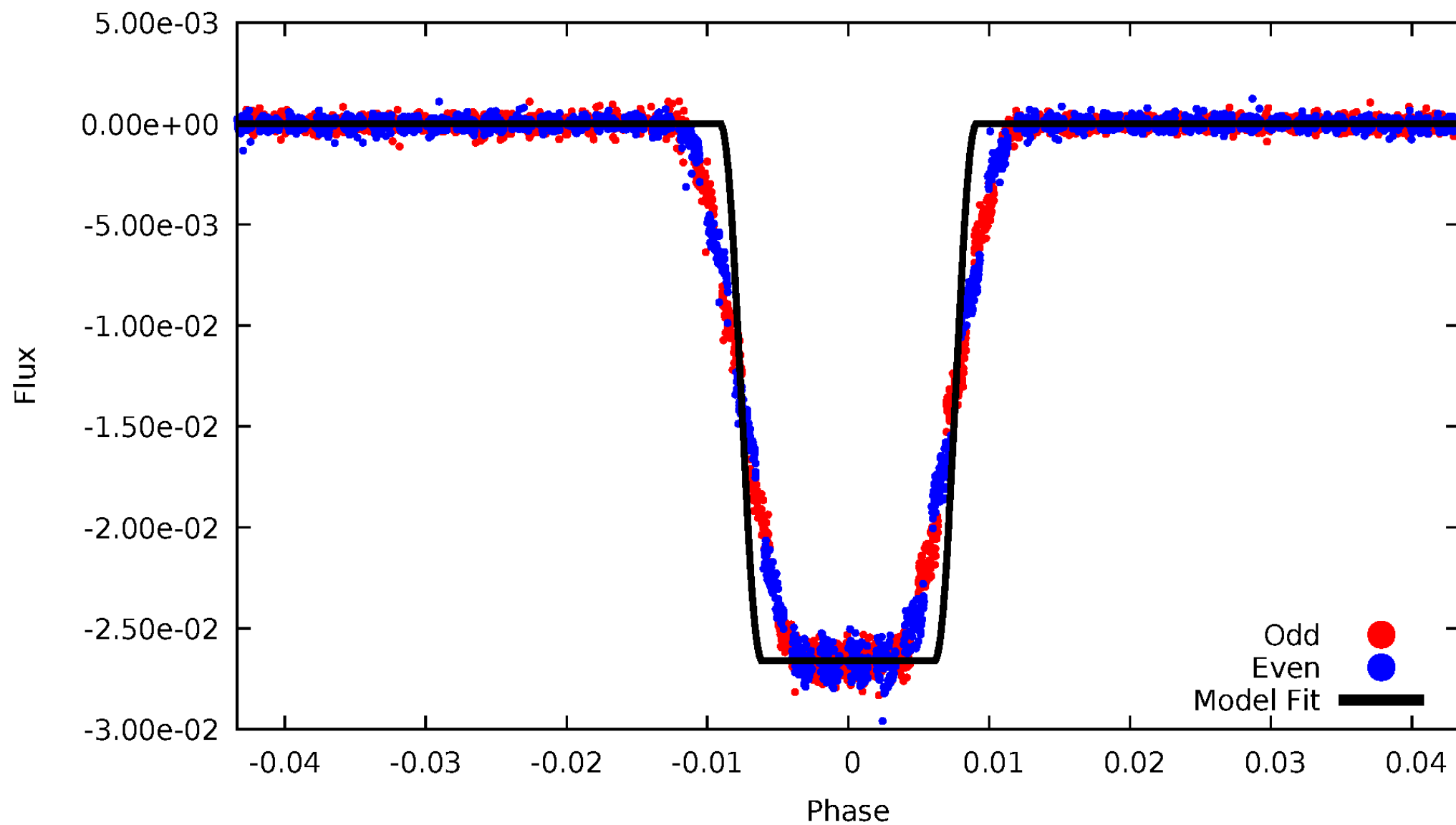
DV Odd/Even

TCE 011409698-02



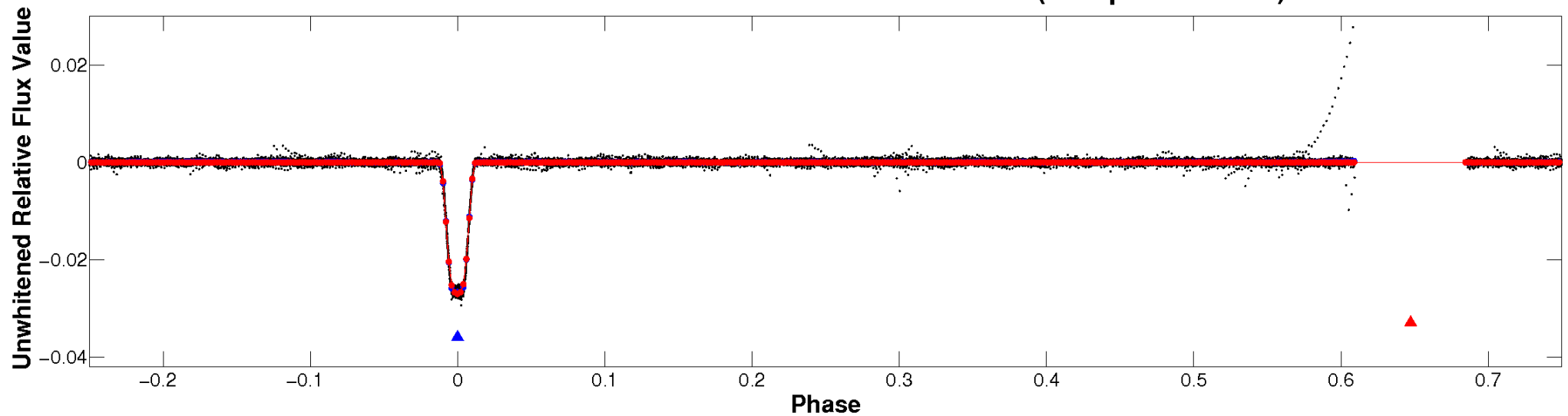
ALT Odd/Even

TCE 011409698-02

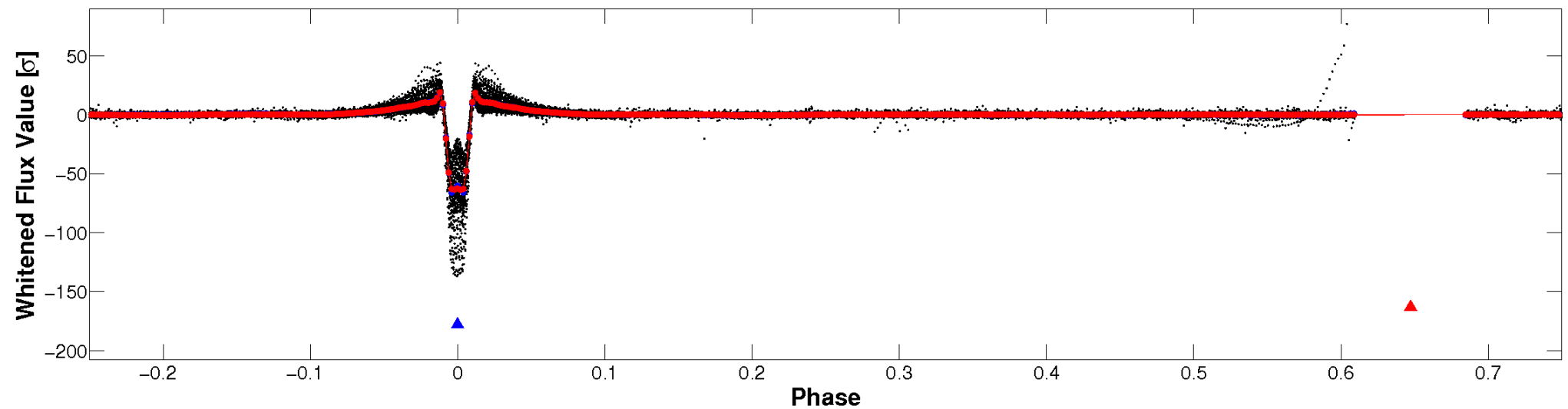


Non-Whitened Vs. Whitened Light Curve

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

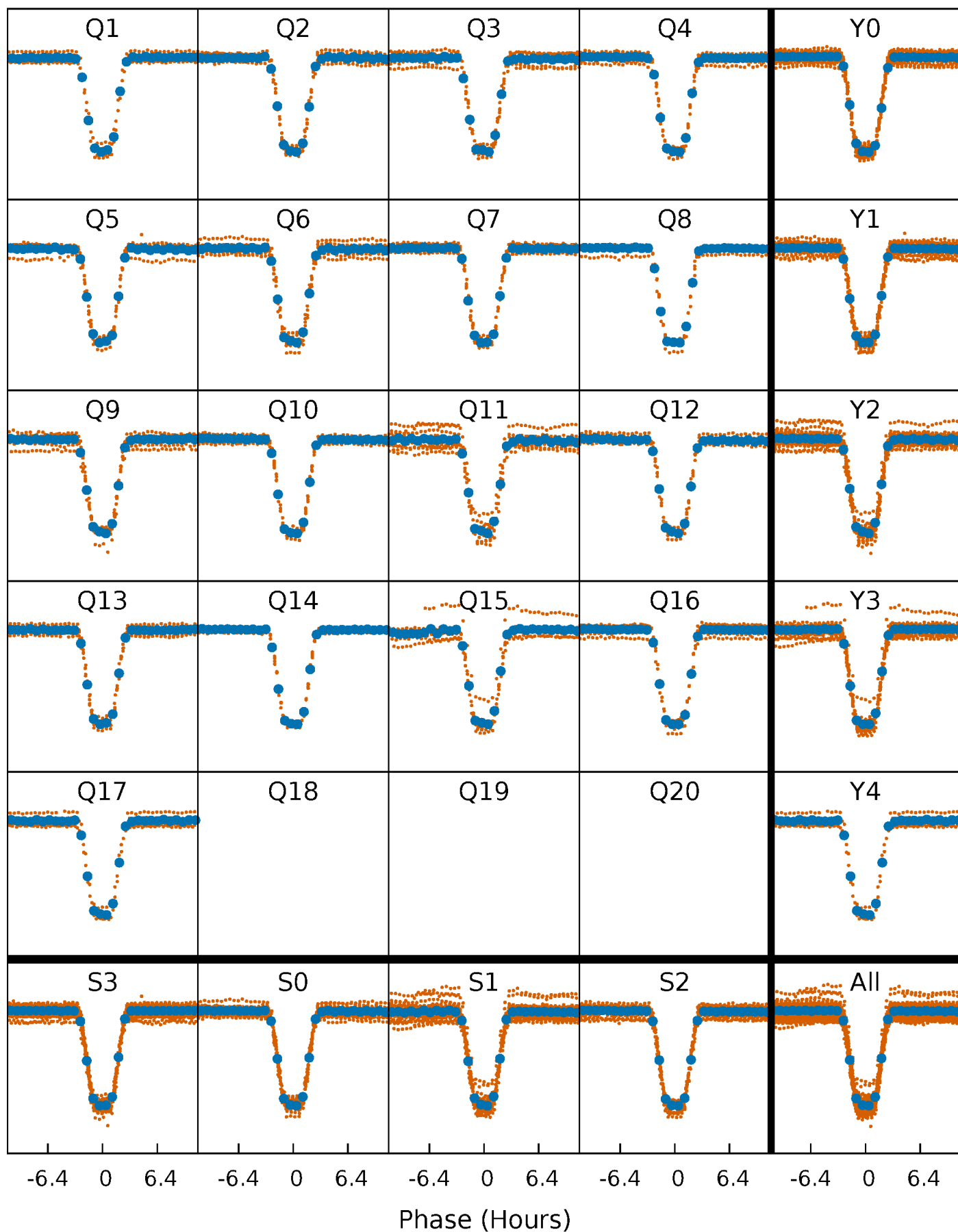


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



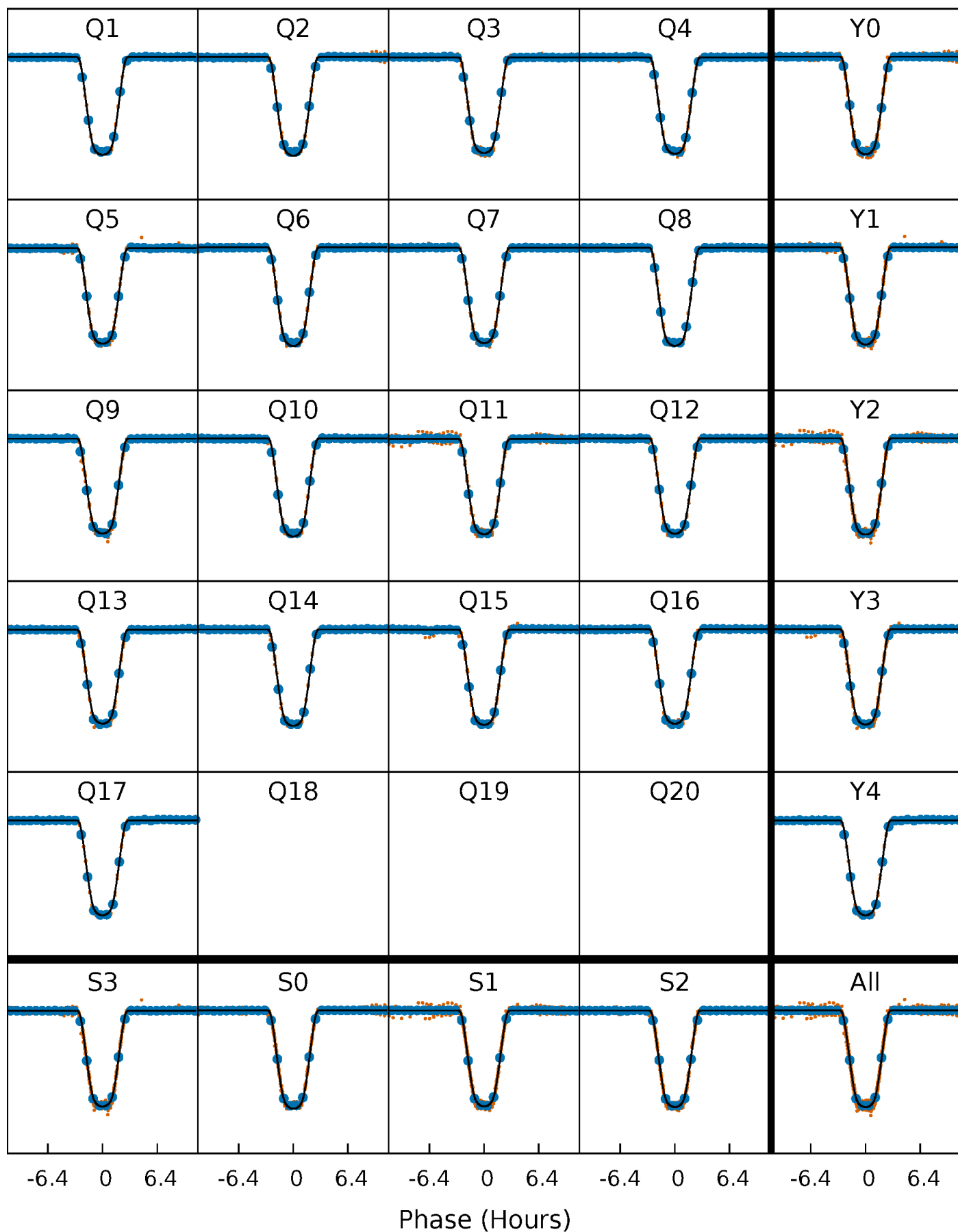
PDC Quarter-Phased Transit Curves

TCE 011409698-02 P= 10.267827 Days $T_0=132.530277$ (BKJD)



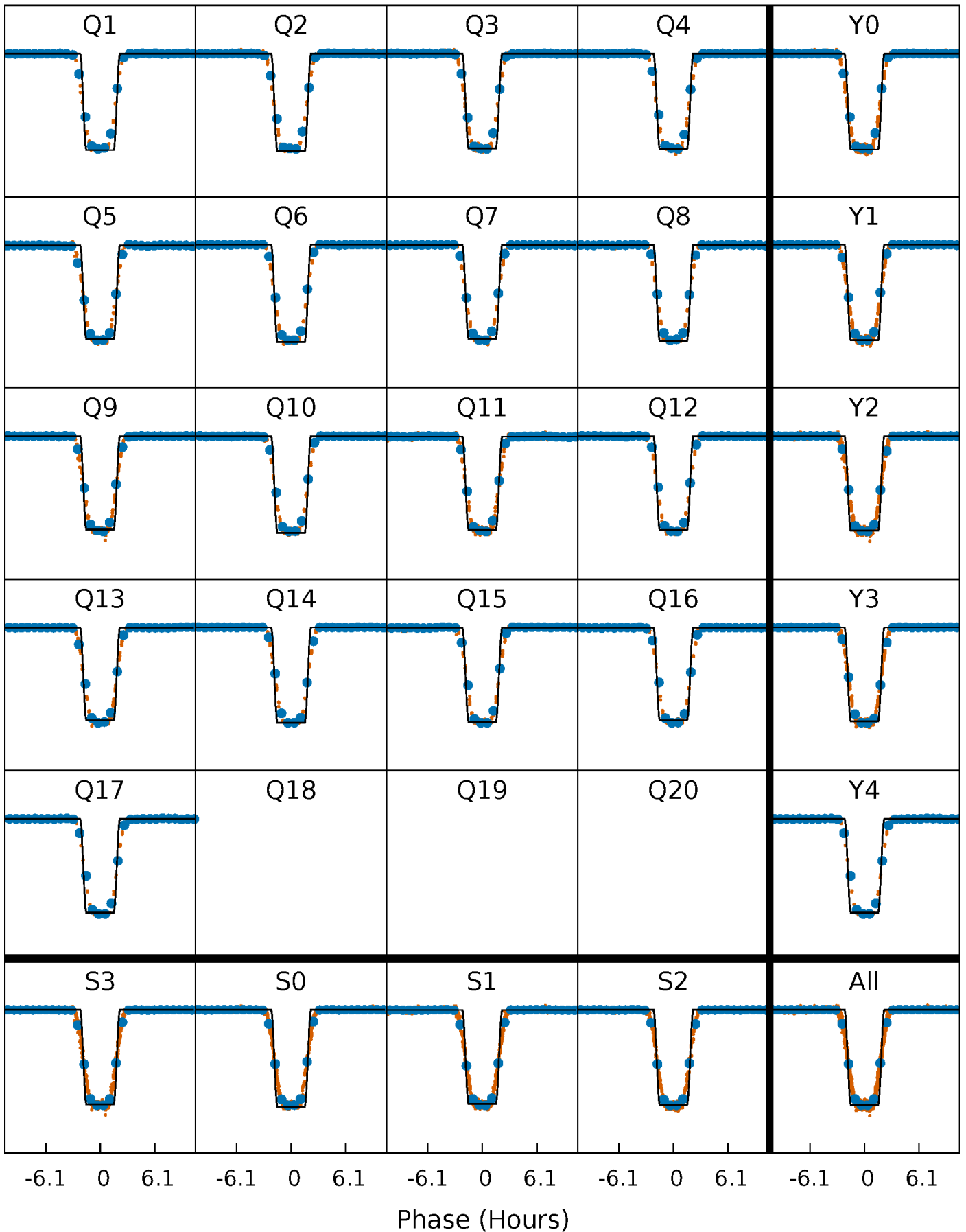
DV Quarter-Phased Transit Curves

TCE 011409698-02 P= 10.267827 Days $T_0=132.530277$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

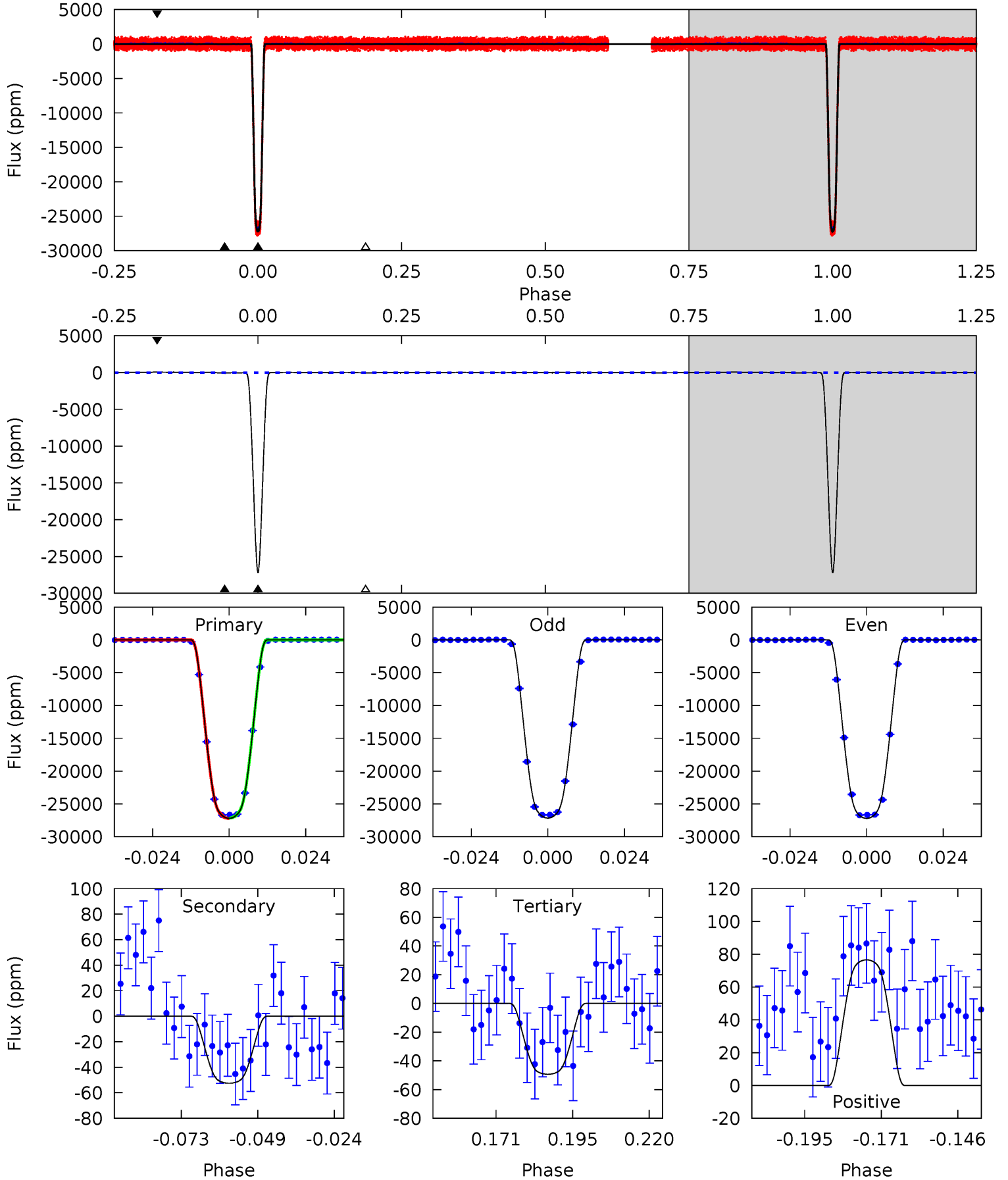
TCE 011409698-02 P= 10.267776 Days $T_0=132.534060$ (BKJD)



DV Model-Shift Uniqueness Test

011409698-02, P = 10.267827 Days, E = 122.262450 Days

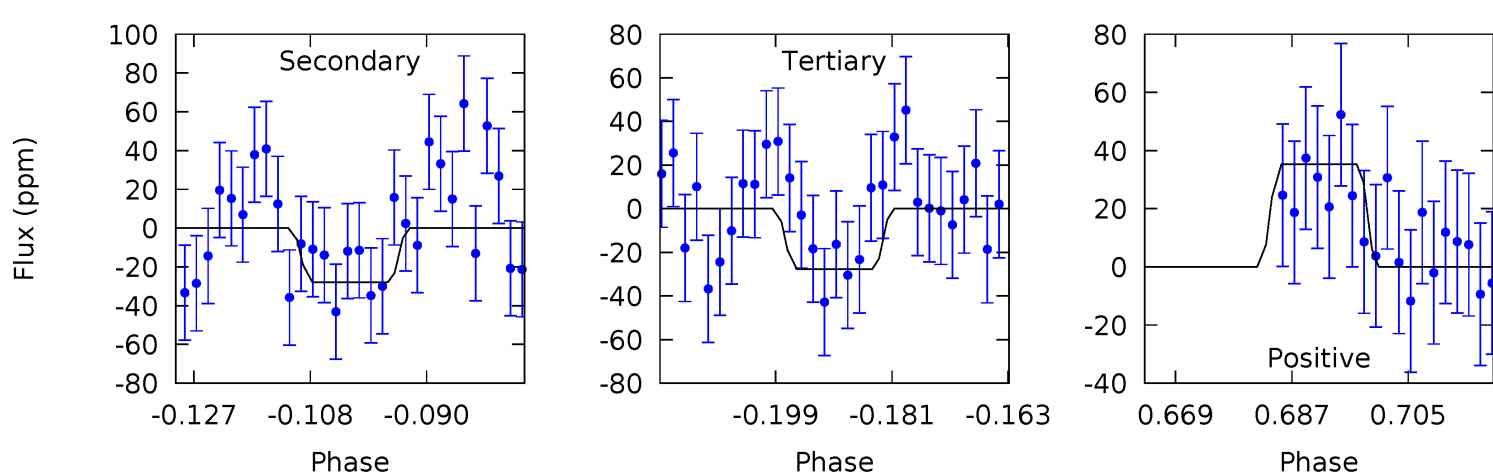
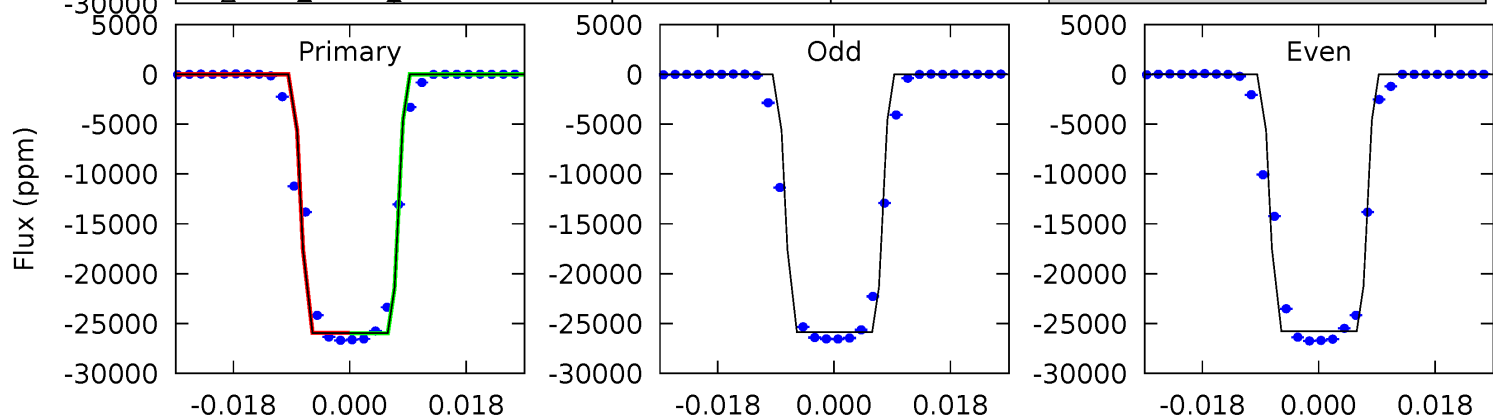
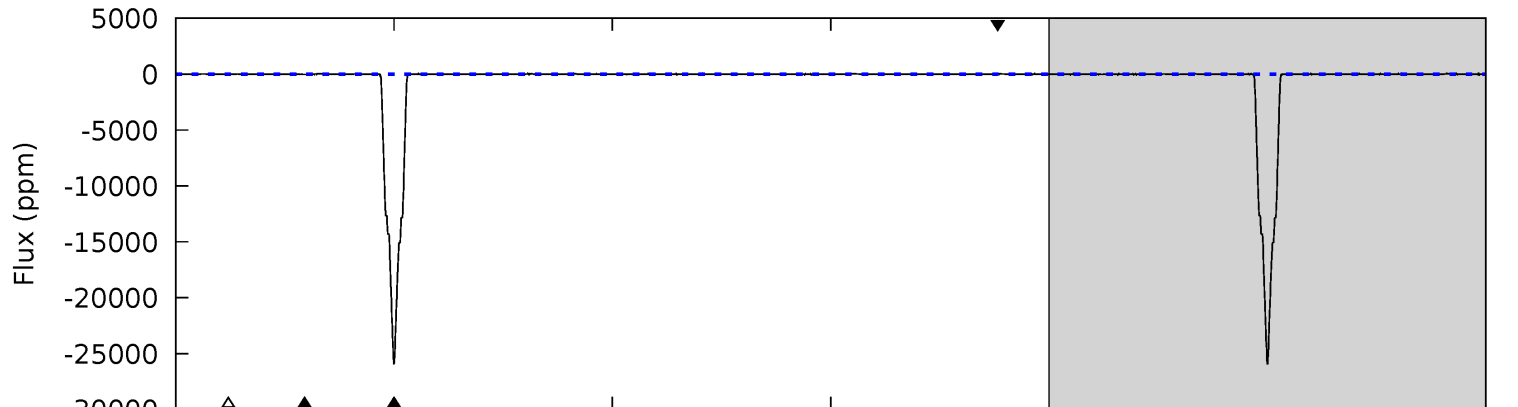
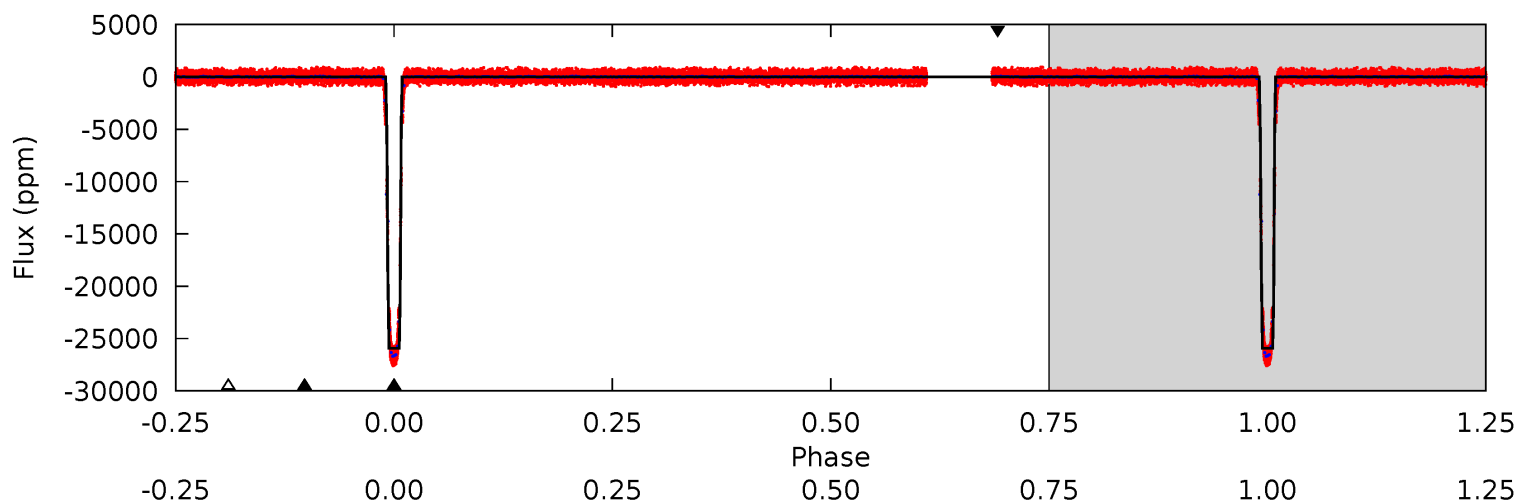
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3888	7.51	7.05	10.9	4.85	2.25	3.32	3881	3877	0.46	-3.44	3.36	1.00	0.00	3.59



Alt Model-Shift Uniqueness Test

011409698-02, P = 10.267776 Days, E = 122.266284 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3034	3.27	3.25	4.13	4.91	2.36	1.20	3031	3030	0.03	-0.86	4.91	1.00	0.00	3.23



Stellar Parameters For KIC 011409698

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6664^{+162}_{-223}	$4.176^{+0.185}_{-0.167}$	$-0.420^{+0.250}_{-0.300}$	$1.440^{+0.410}_{-0.336}$	$1.135^{+0.178}_{-0.146}$	$0.535^{+0.603}_{-0.248}$
	+2%/-3%	+4%/-4%	+60%/-71%	+28%/-23%	+16%/-13%	+113%/-46%
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 011409698-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-53 ± 7	$26.10^{+4.01}_{-3.30}$	1577^{+112}_{-108}	1974^{+143}_{-3524}	$0.395^{+0.130}_{-0.101}$
Alt.	-28 ± 9	$25.59^{+4.13}_{-3.23}$	1578^{+117}_{-109}	-1950^{+3627}_{-183}	$0.218^{+0.104}_{-0.082}$

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 $A_{obs} \gg 1.0$

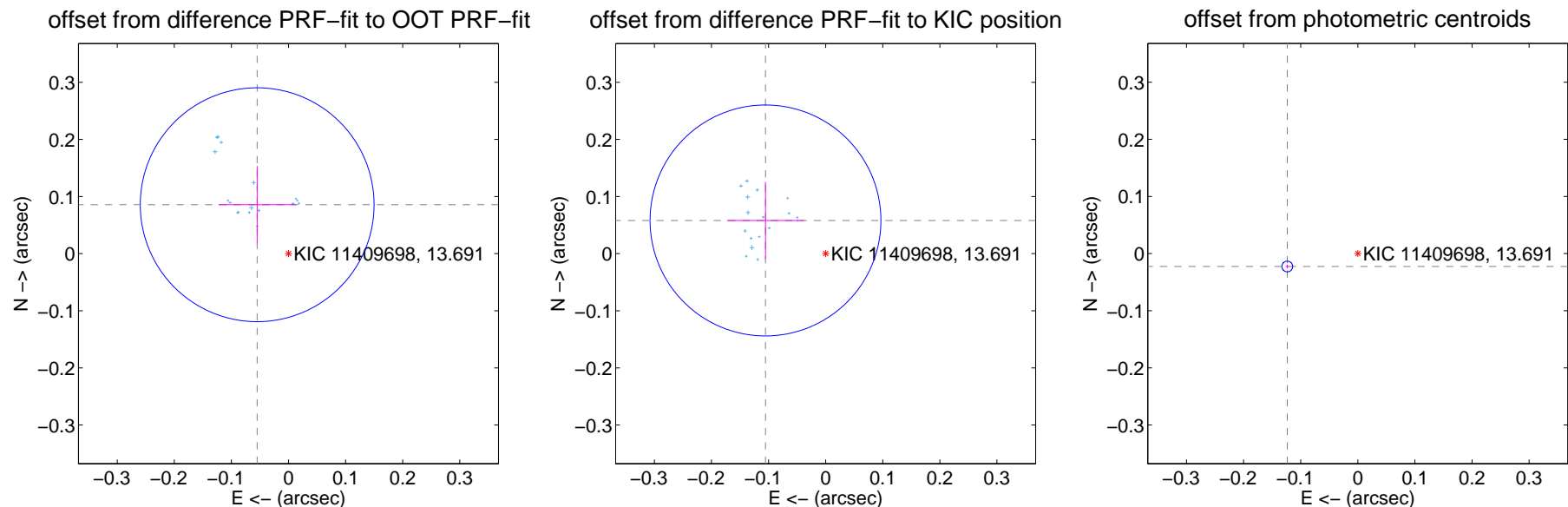
DV Centroid Data

Supplemental centroid analysis for 011409698-02. Kepler magnitude: 13.69. Transit SNR 1708.79

There are 17 quarters with good PRF difference image offsets

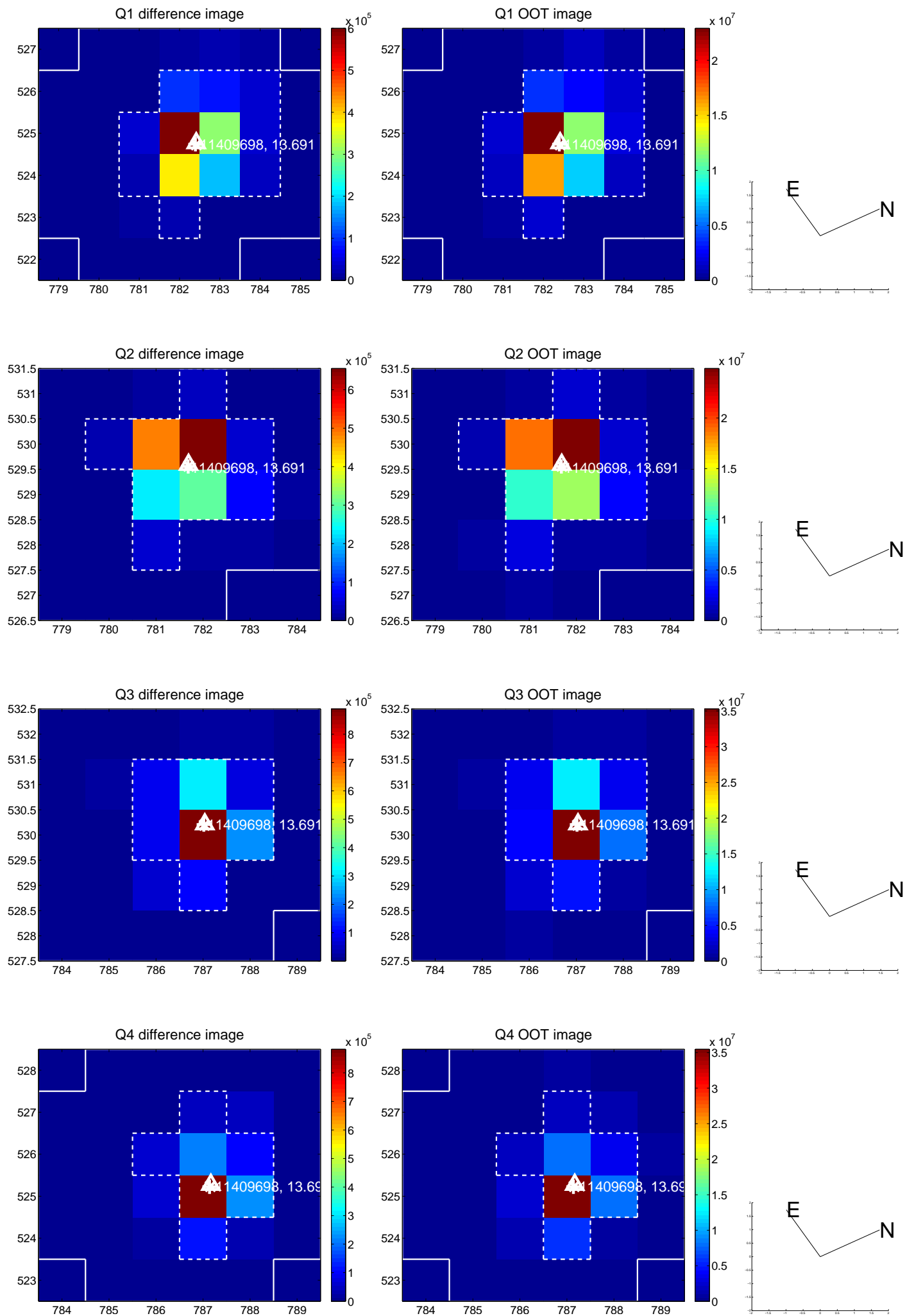
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.102 ± 0.068	1.49	0.055 ± 0.068	0.086 ± 0.068
PRF-fit source offset from KIC position	0.120 ± 0.067	1.79	0.105 ± 0.067	0.058 ± 0.067
photometric centroid source offset	0.13 ± 0.00	40.10	0.12 ± 0.00	-0.02 ± 0.00

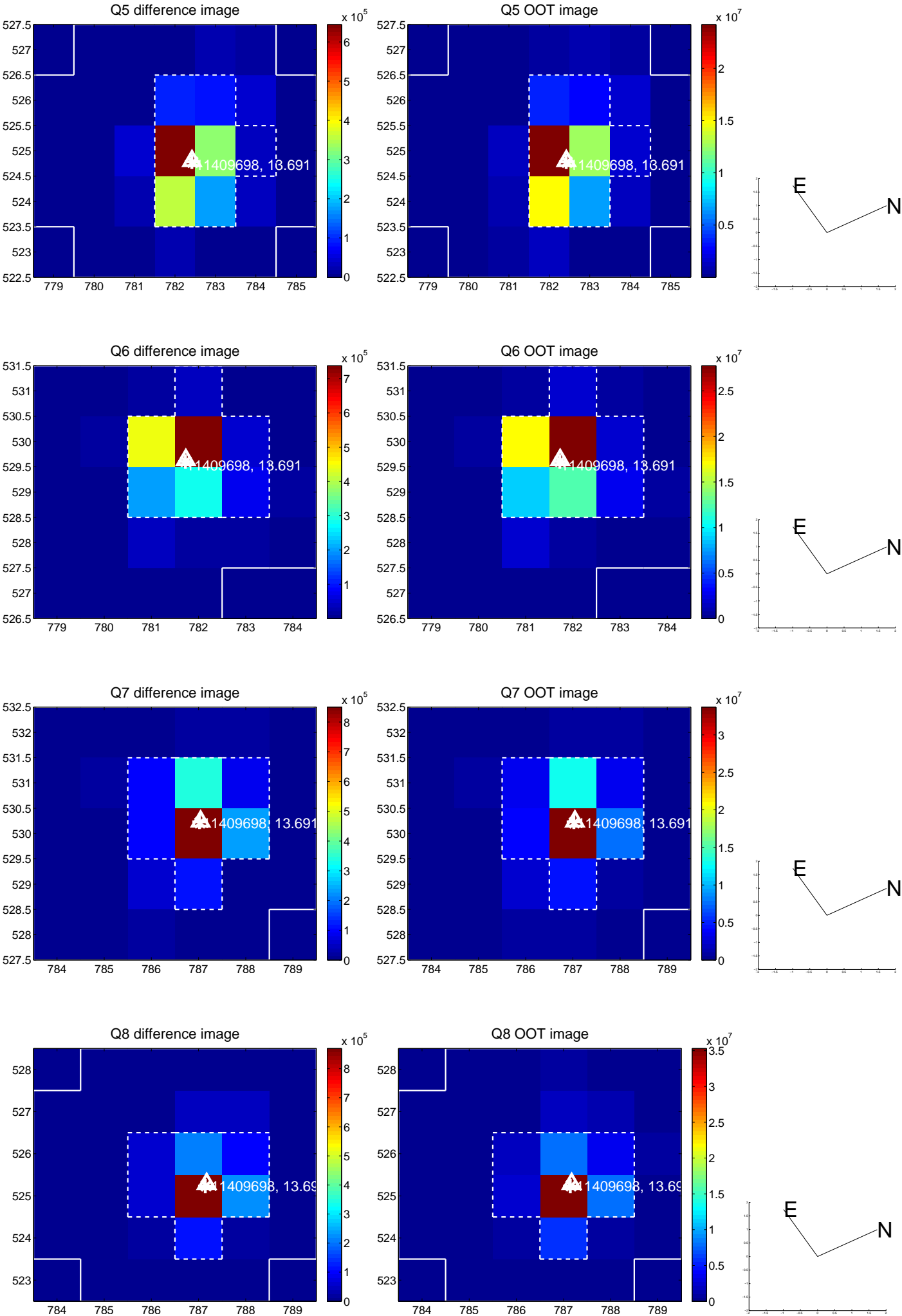


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

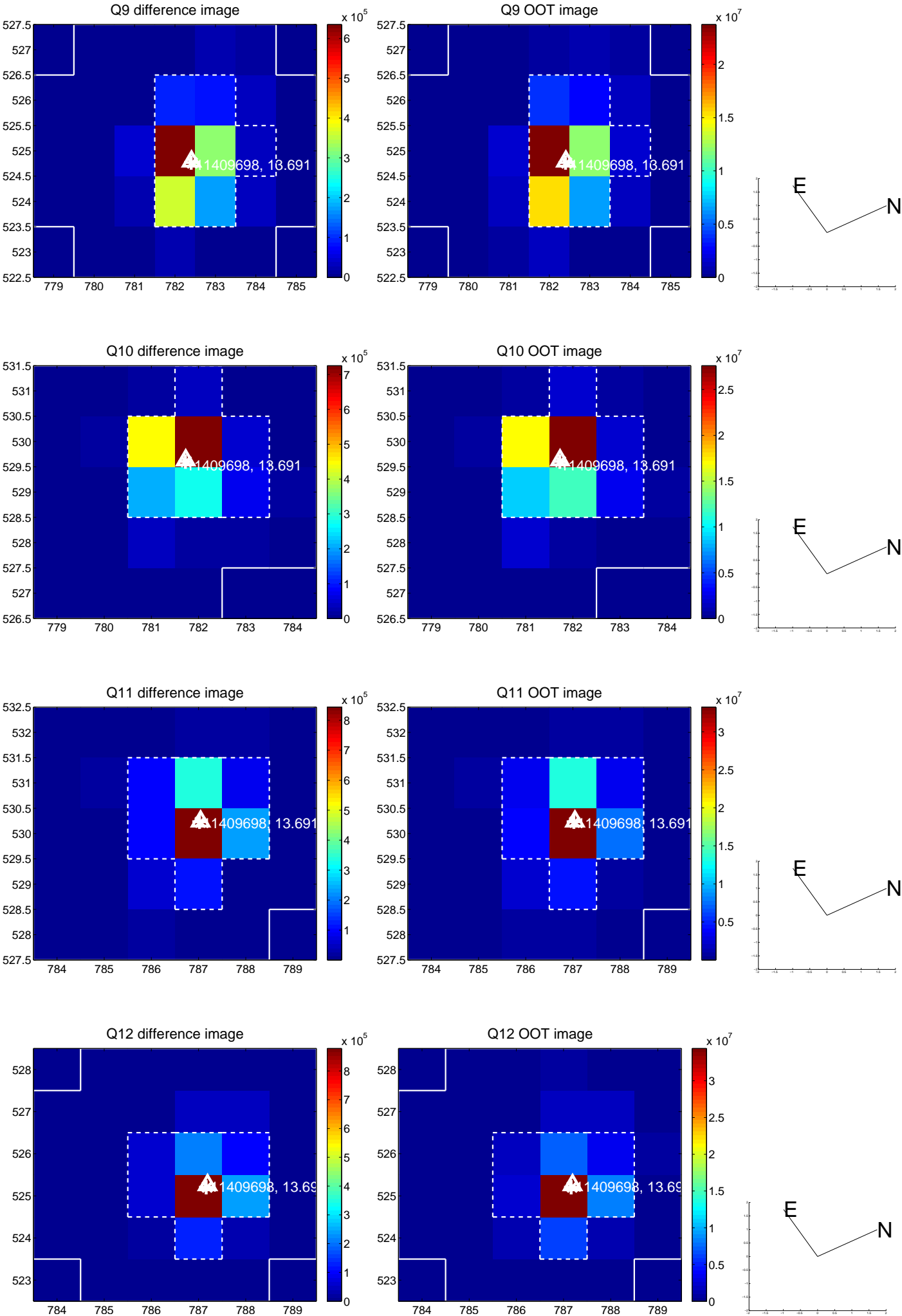
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



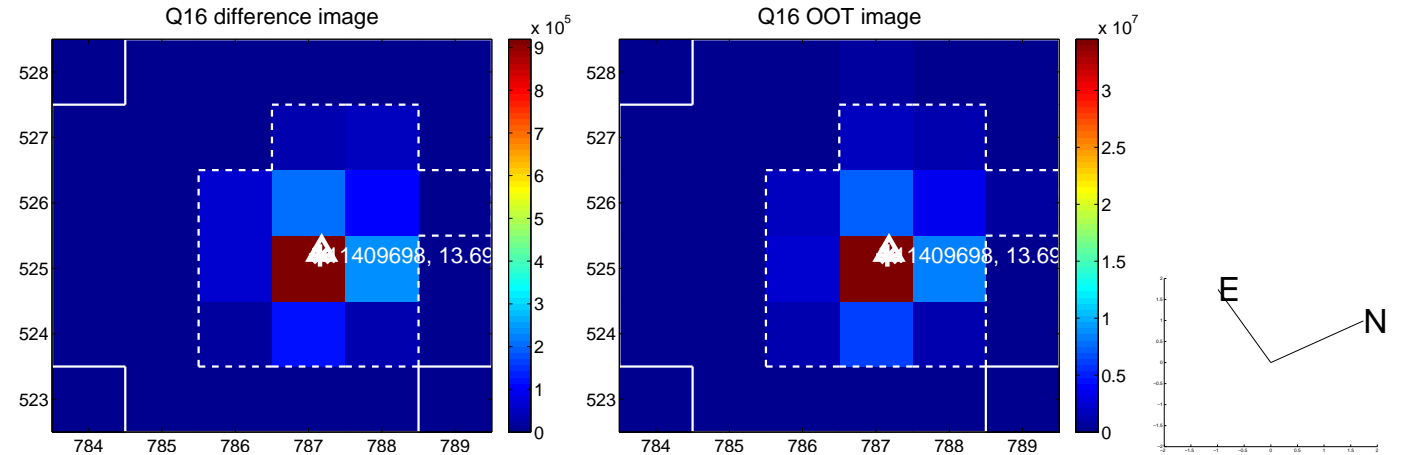
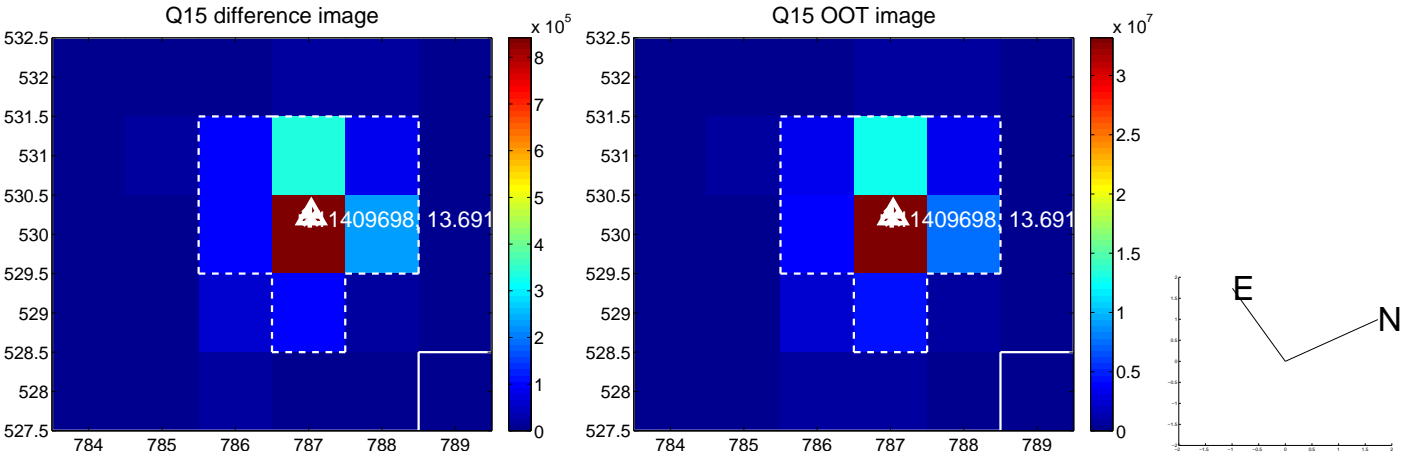
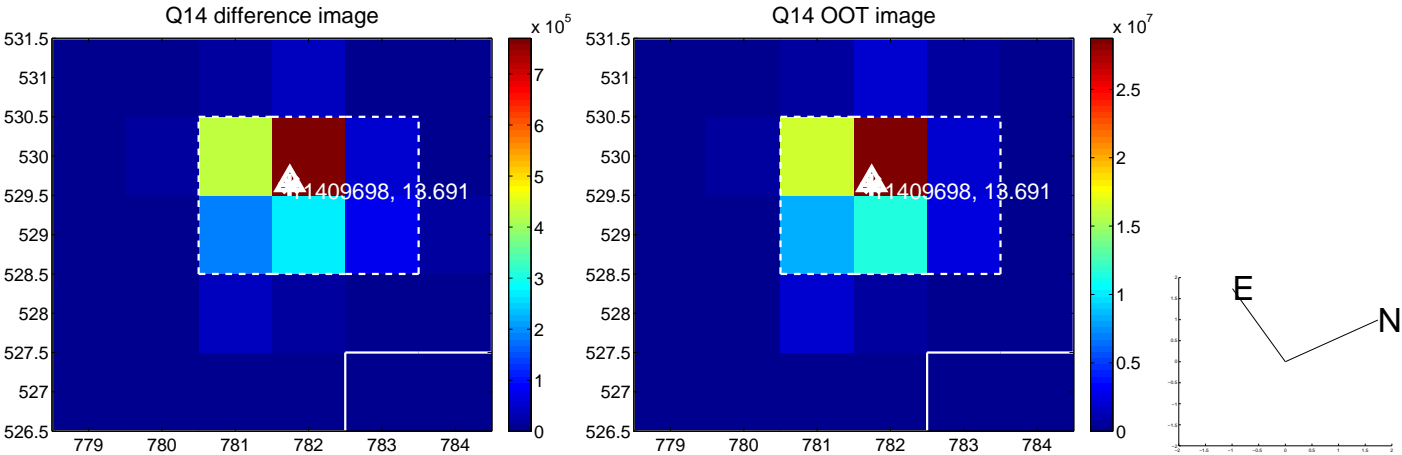
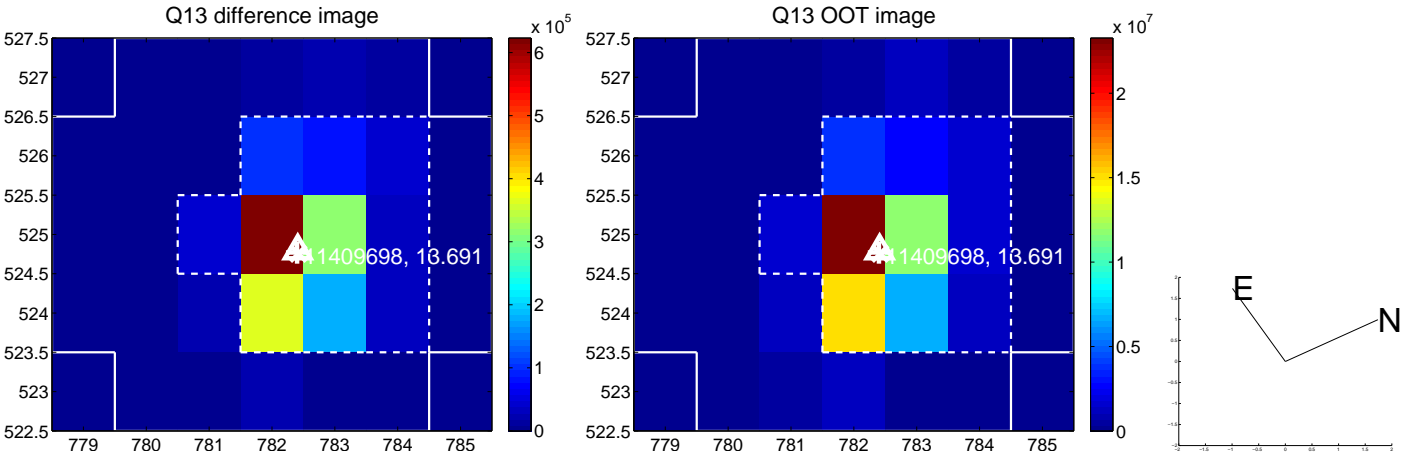
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



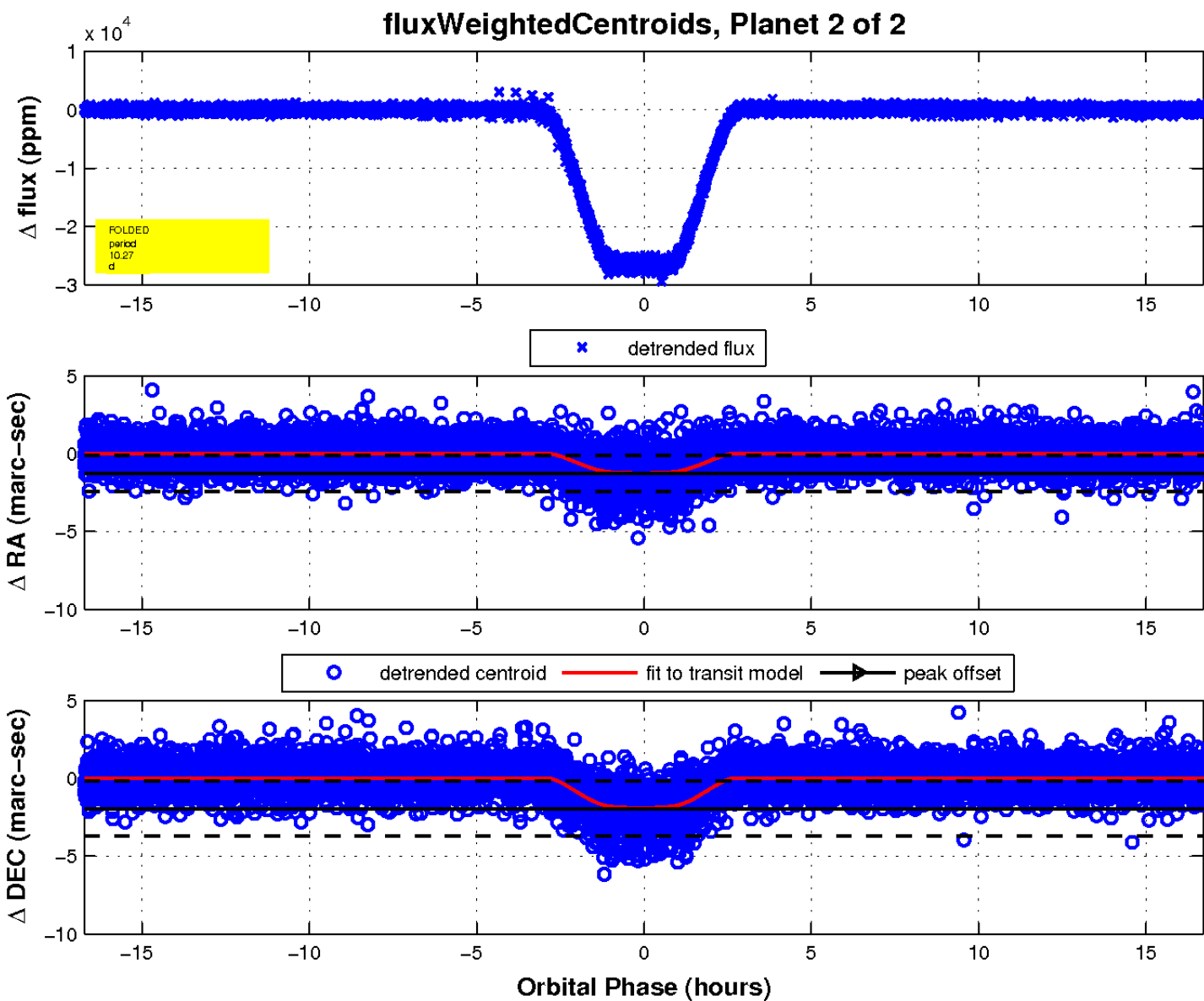
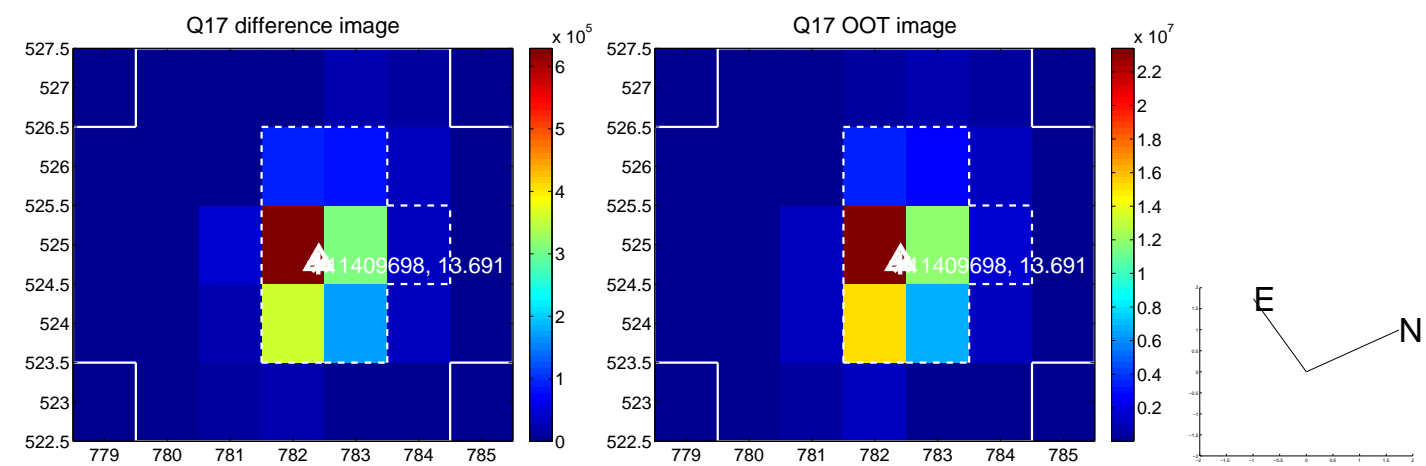
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UKIRT Image

Declination

