

KIC 003529497

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})
003529497-01	OBS	No	1.045024	132.502691	219.5	4.103	8.8	8.3	0.52	4591	0.93	406.47
003529497-02	OBS	No	204.387970	255.222227	3525.4	2.404	10.4	7.9	0.52	4591	3.74	0.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003529497-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003529497-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

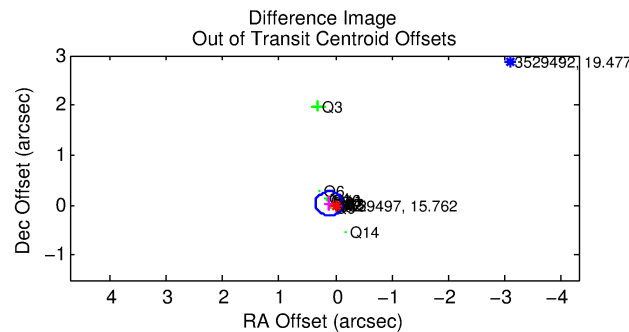
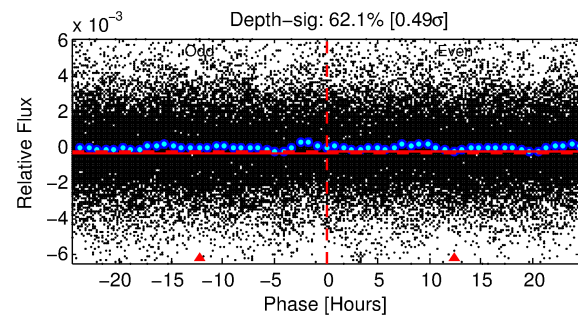
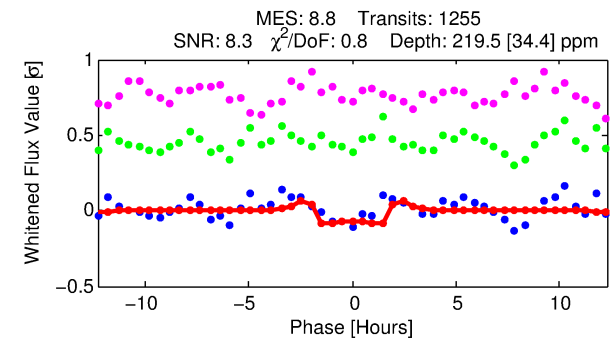
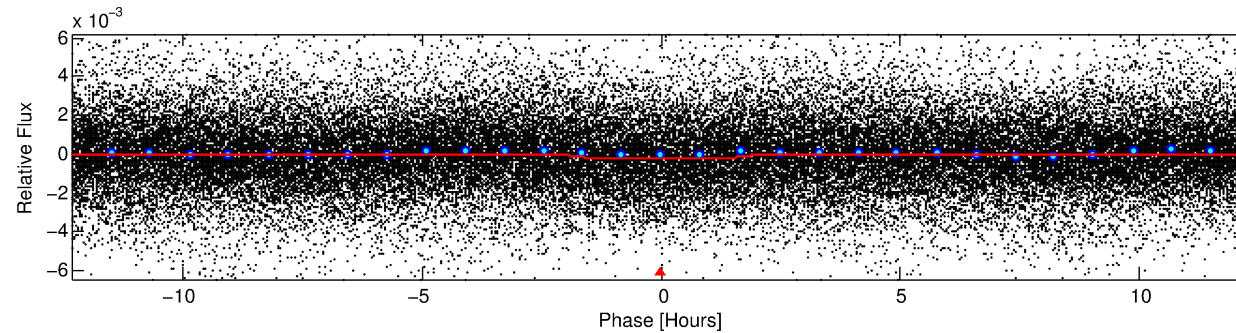
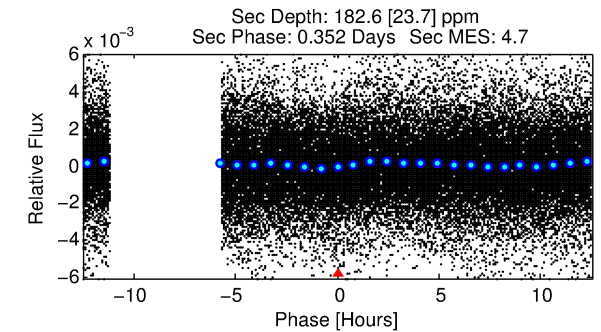
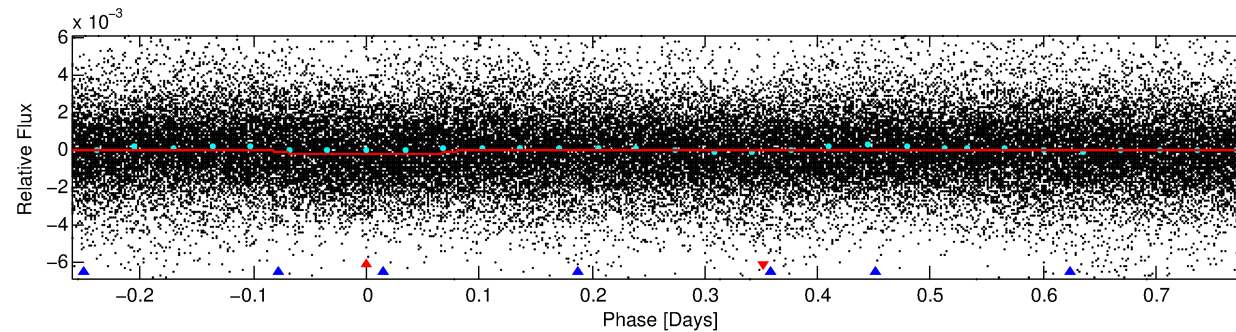
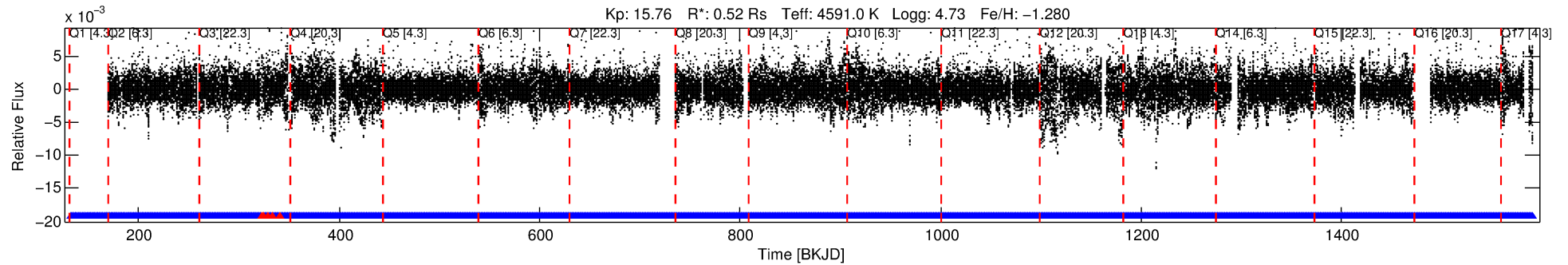
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003529497-01

No Significant Match Found

DV One-Page Summary

KIC: 3529497 Candidate: 1 of 2 Period: 1.045 d



DV Fit Results:

Period = 1.04502 [0.00001] d
Epoch = 132.5027 [0.0025] BKJD
Rp/R* = 0.0163 [0.0034]
a/R* = 1.31 [0.43]
b = 0.90 [0.16]
Seff = 406.47 [68.68]
Teq = 1145 [48] K
Rp = 0.93 [0.21] Re
a = 0.0163 [0.0010] AU
Ag = 30.91 [13.84] [2.16σ]
Teffp = 4174 [480] K [6.28σ]

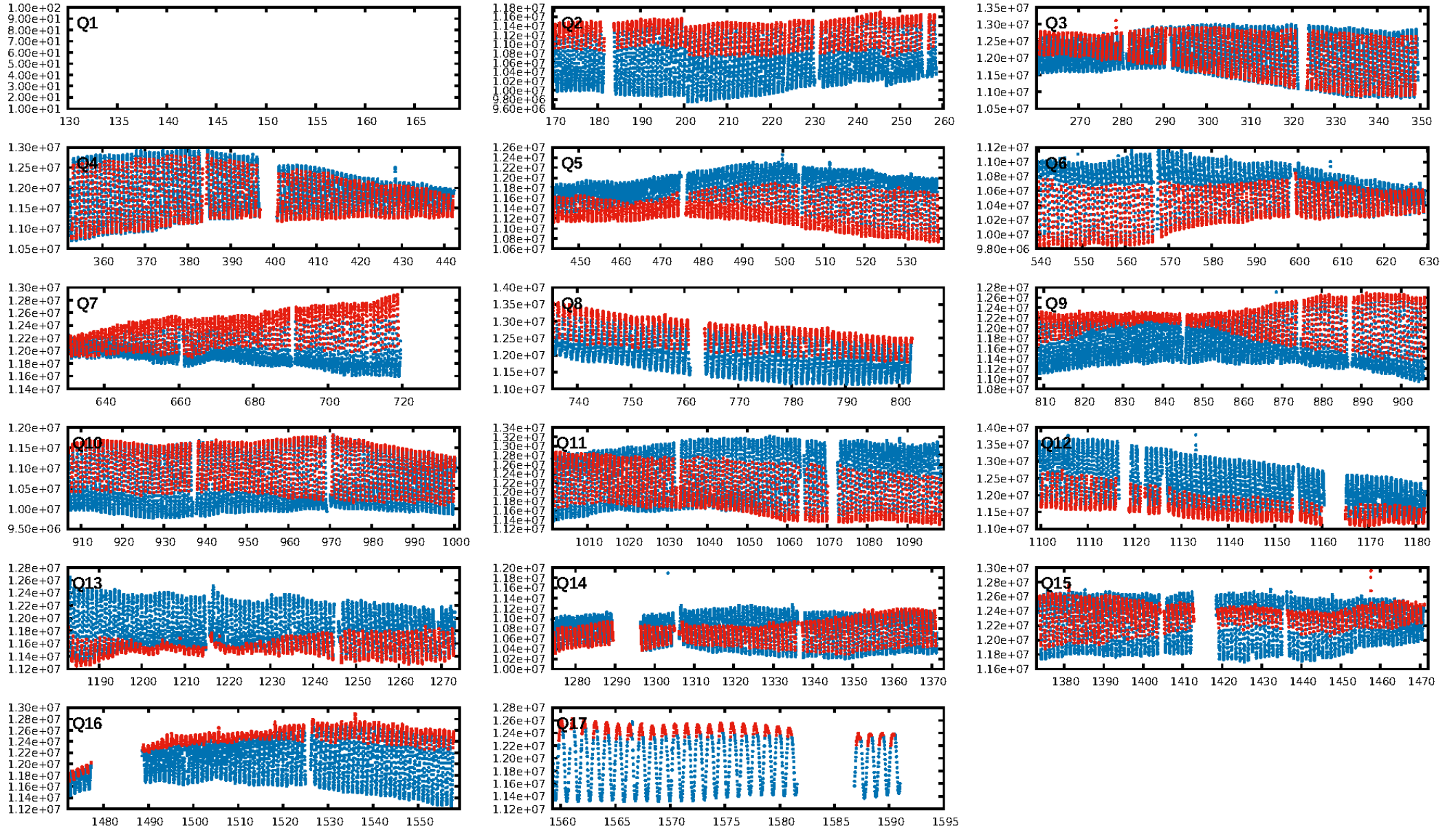
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1026.18σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.84e-15
RollingBand-fgt: 1.00 [1225/1230]
GhostDiagnostic-chr: 0.9336
Centroid-sig: N/A
Centroid-so: 1.474 arcsec [2.16σ]
OotOffset-rm: 0.122 arcsec [1.51σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-rm: 0.085 arcsec [0.79σ]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.44 [7/16]
DiffImageOverlap-fno: 1.00 [16/16]

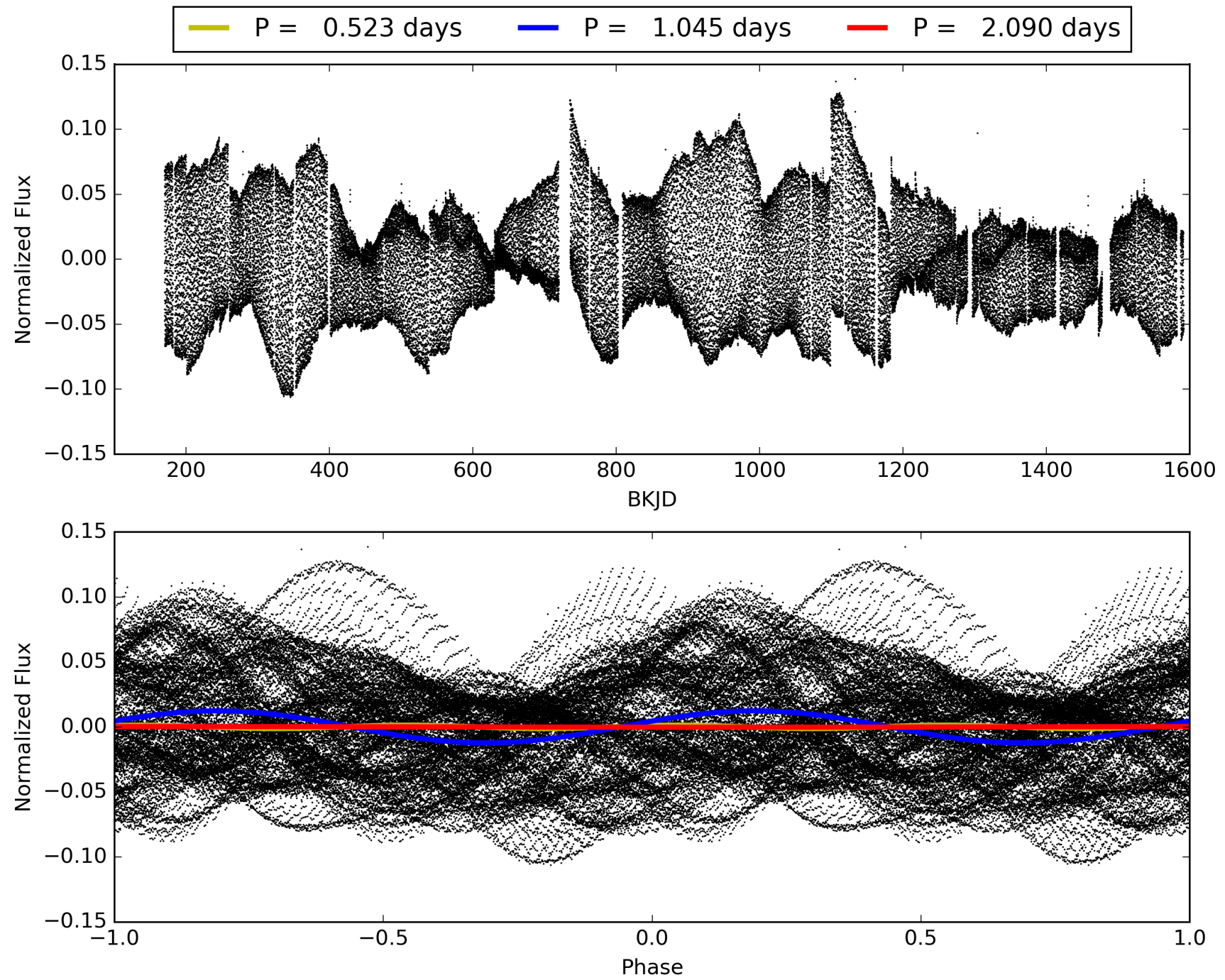
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:00:00 Z

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

TCE 003529497-01, PDC Light Curves

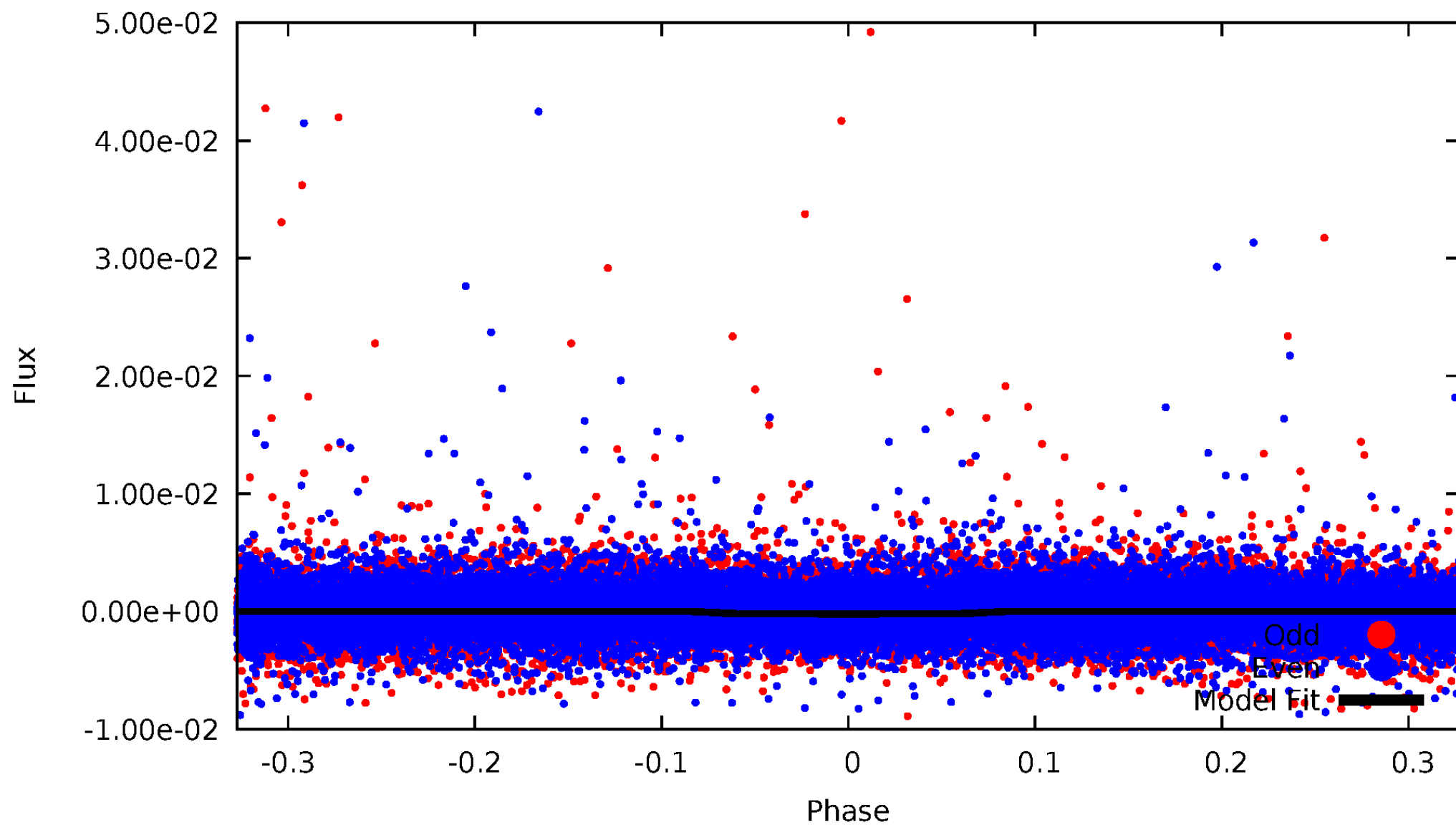


TCE 003529497-01



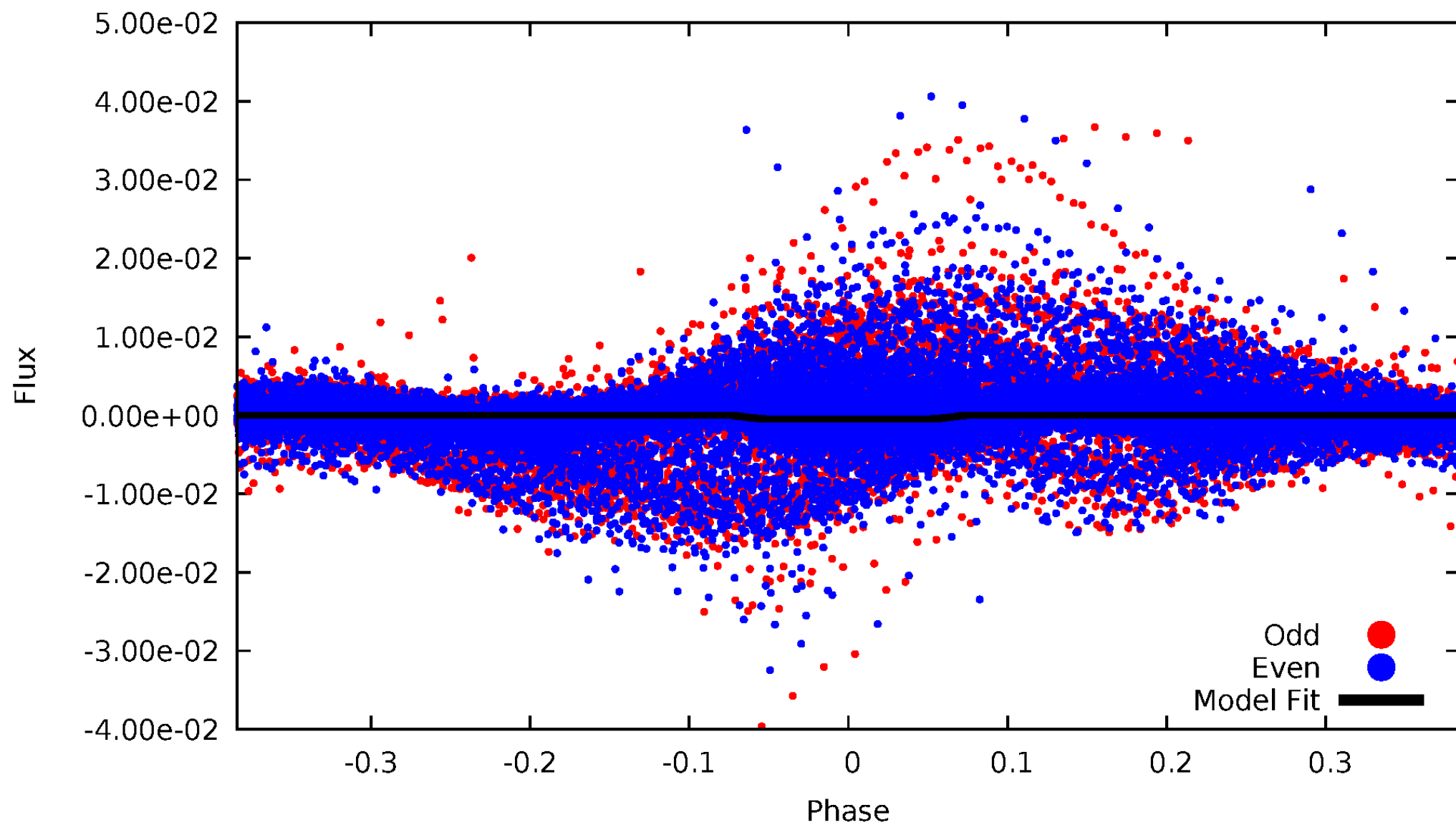
DV Odd/Even

TCE 003529497-01



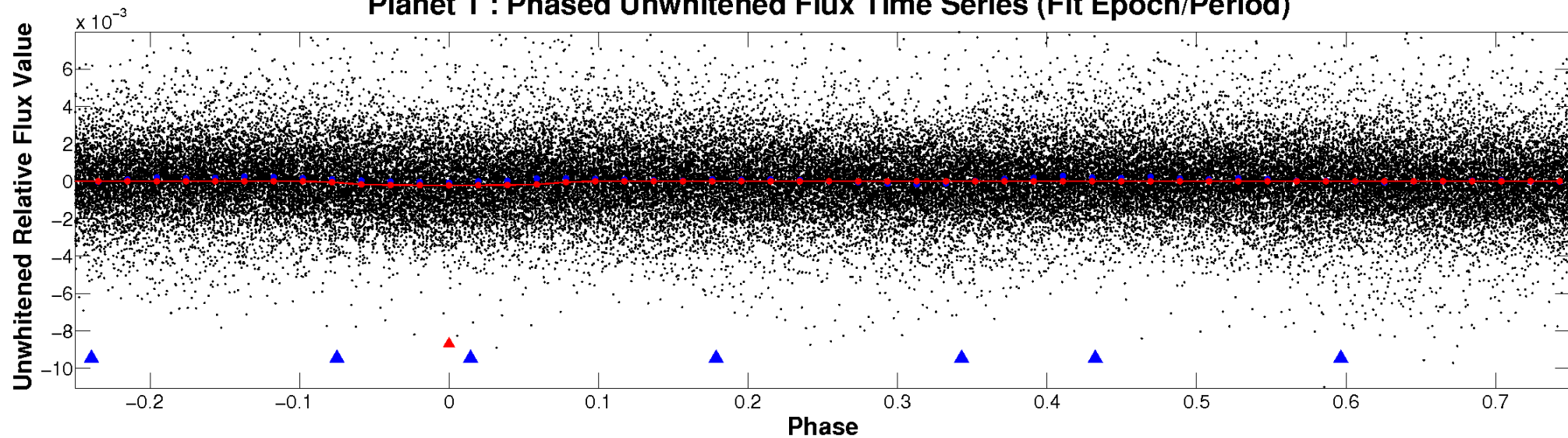
ALT Odd/Even

TCE 003529497-01

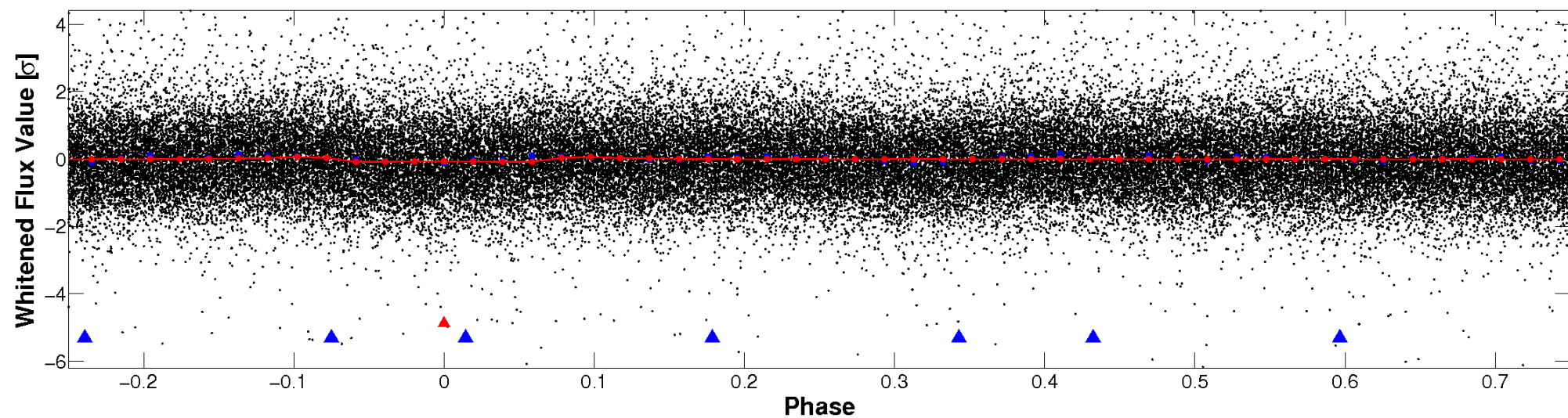


Non-Whitened Vs. Whitened Light Curve

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

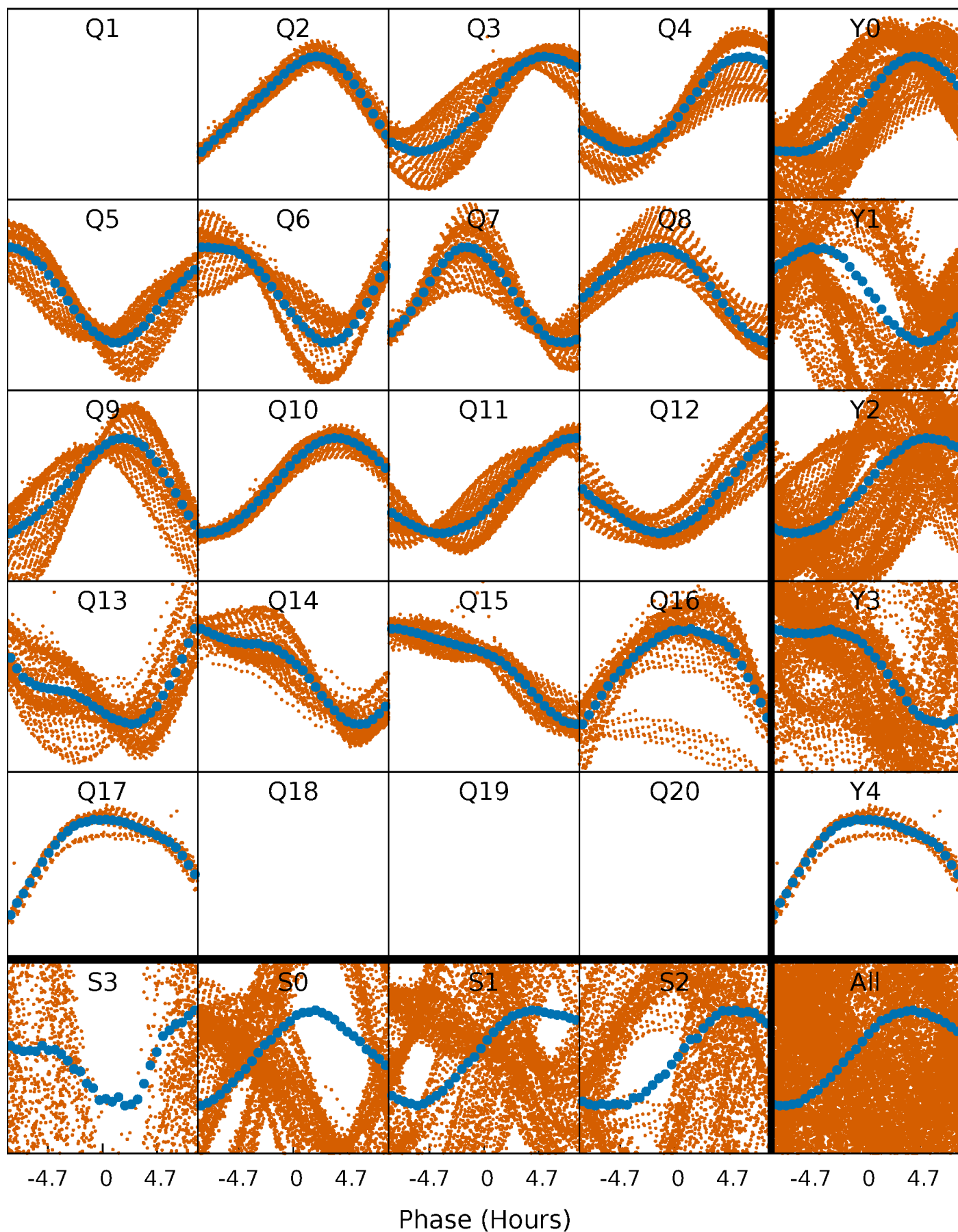


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



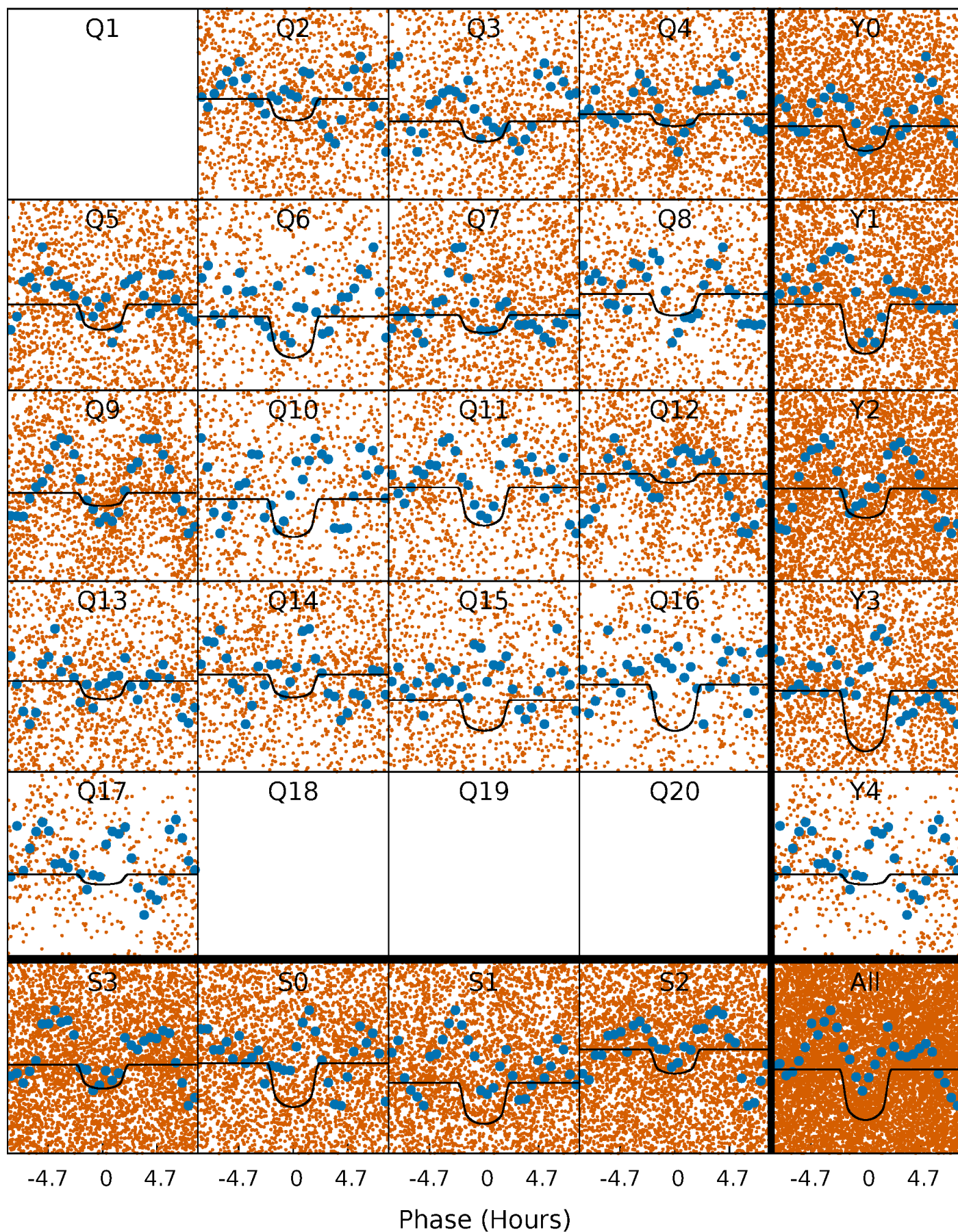
PDC Quarter-Phased Transit Curves

TCE 003529497-01 P= 1.045024 Days $T_0=132.502691$ (BKJD)



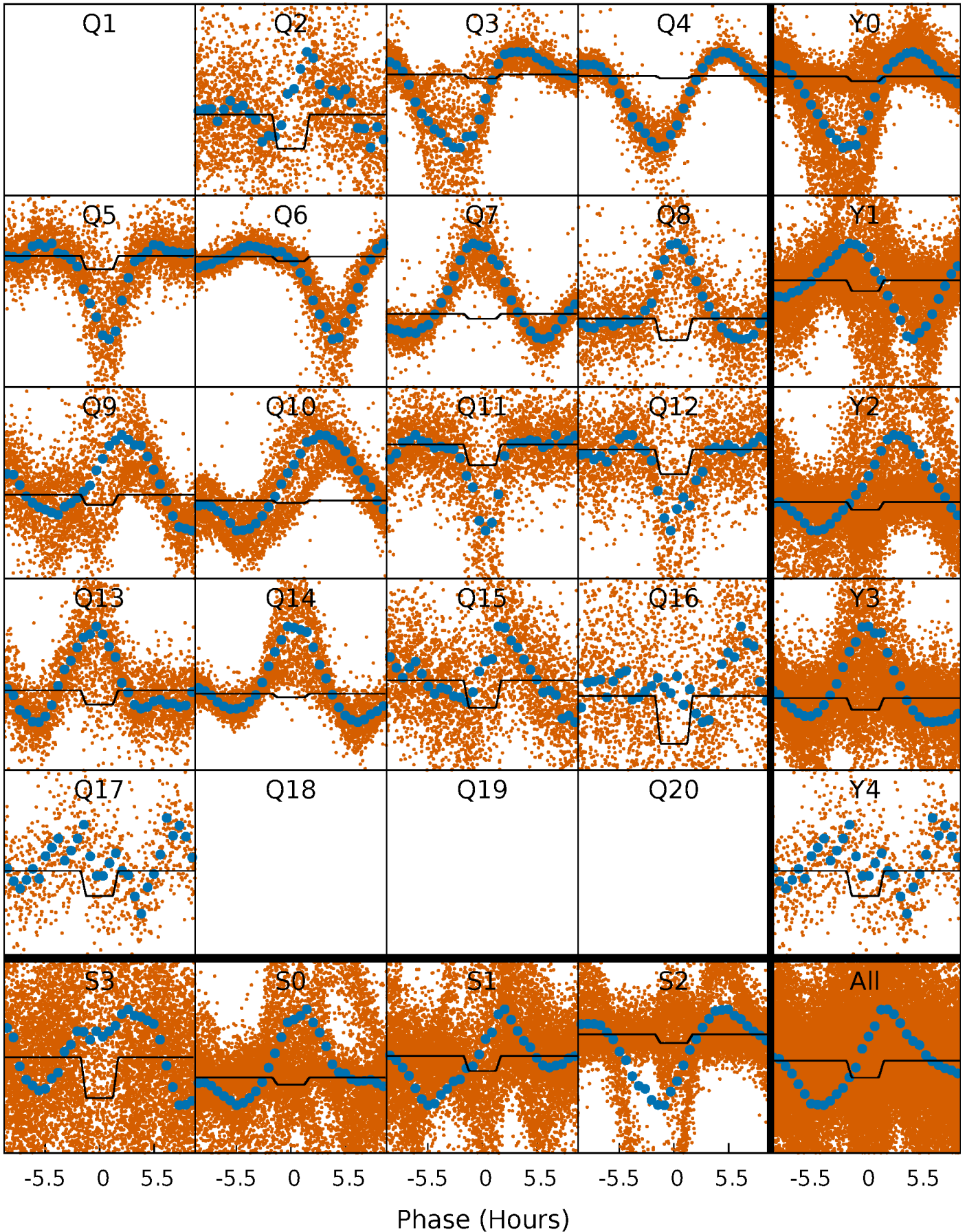
DV Quarter-Phased Transit Curves

TCE 003529497-01 P= 1.045024 Days $T_0=132.502691$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

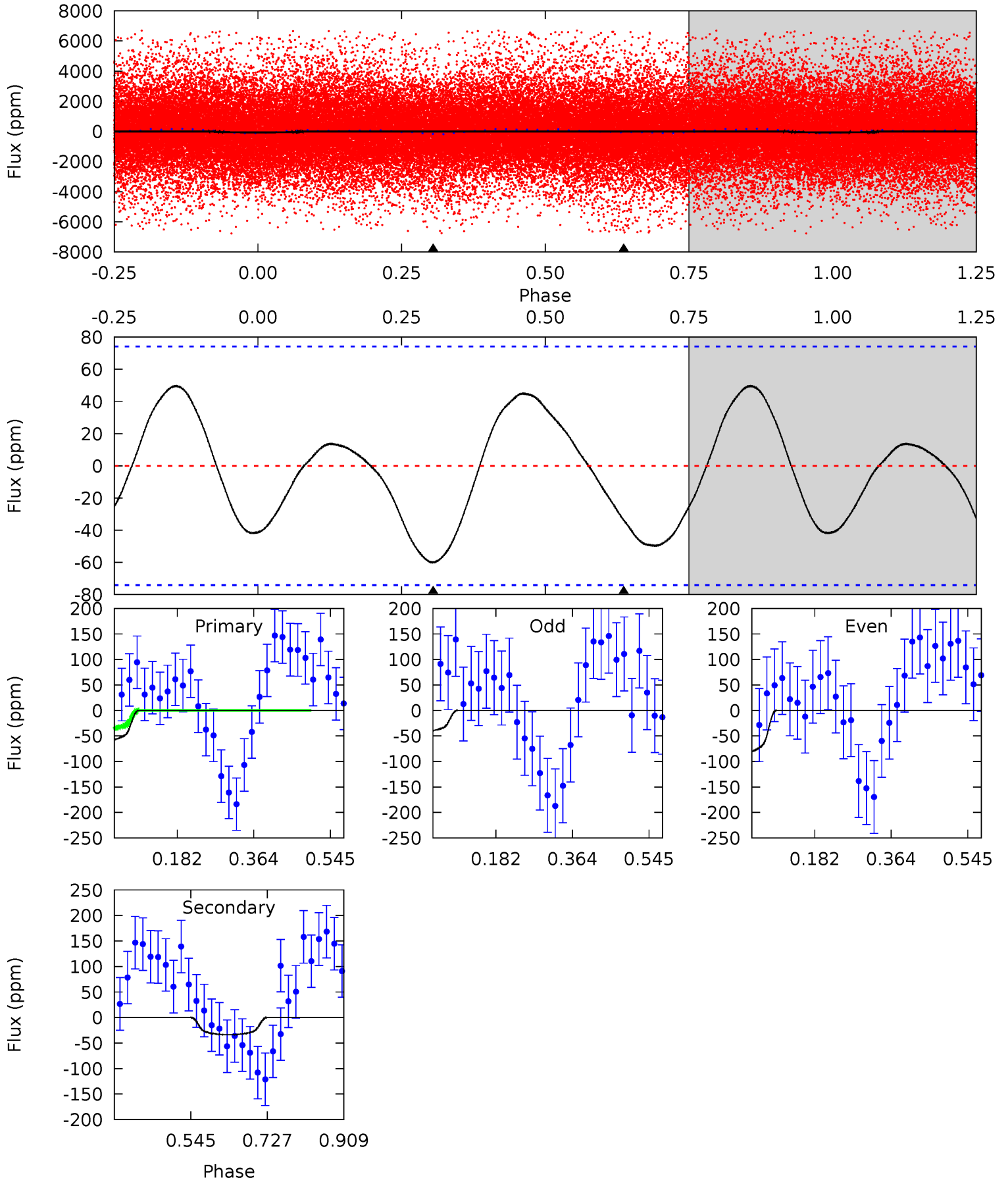
TCE 003529497-01 P= 1.044996 Days $T_0=132.505539$ (BKJD)



DV Model-Shift Uniqueness Test

003529497-01, P = 1.045024 Days, E = 132.502691 Days

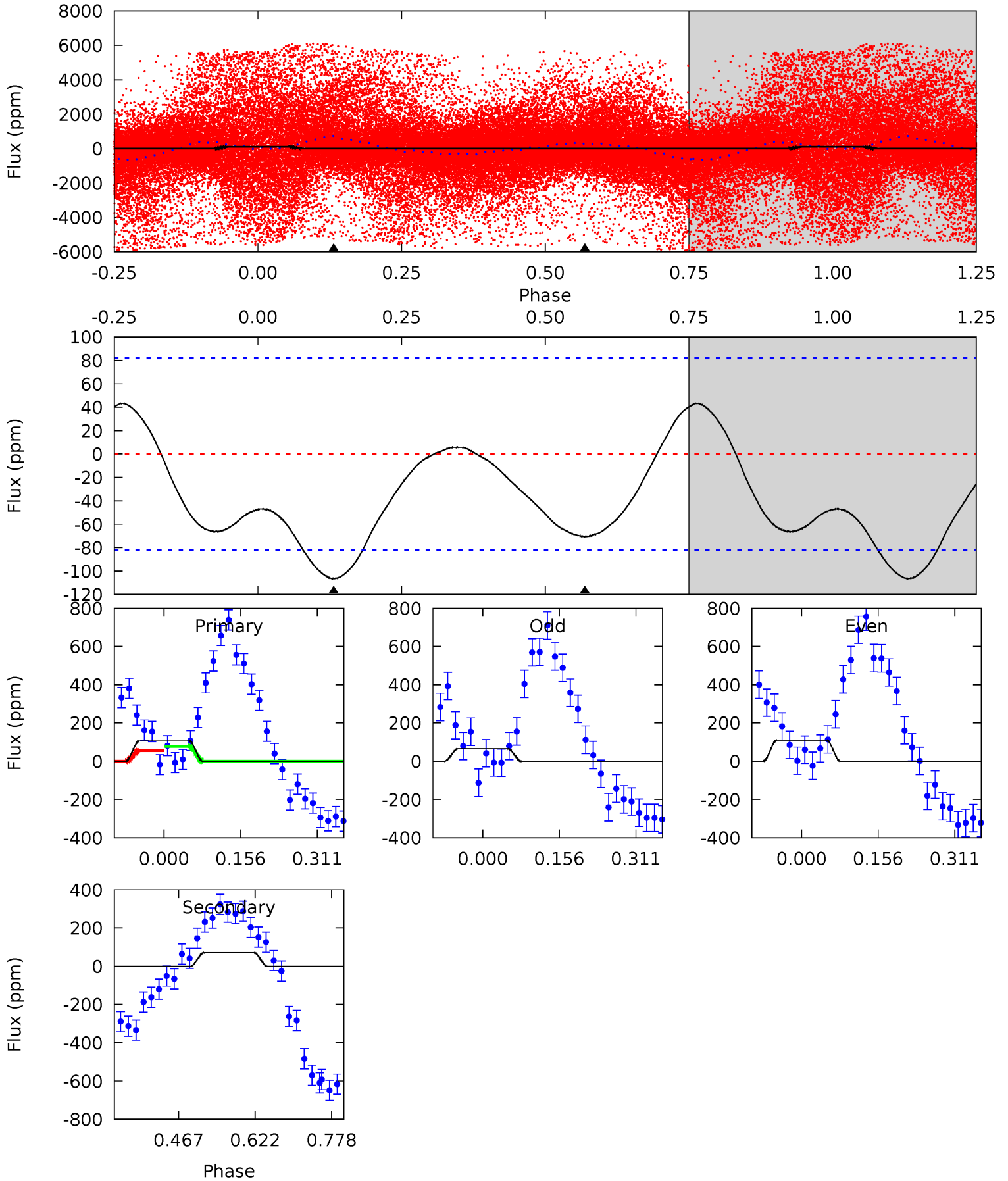
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.60	2.02	0	0	4.44	1.34	1.85	3.60	3.60	2.02	2.02	1.31	-0.12	0.45	1.59



Alt Model-Shift Uniqueness Test

003529497-01, P = 1.044996 Days, E = 132.505539 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.82	3.86	0	0	4.47	1.42	1.92	5.82	5.82	3.86	3.86	1.26	-4.83	0.29	0.61



Stellar Parameters For KIC 003529497

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4591^{+145}_{-161}	$4.727^{+0.052}_{-0.028}$	$-1.280^{+0.300}_{-0.300}$	$0.520^{+0.032}_{-0.039}$	$0.525^{+0.035}_{-0.026}$	$5.266^{+1.043}_{-0.598}$
	+3%/-4%	+1%/-1%	+23%/-23%	+6%/-8%	+7%/-5%	+20%/-11%
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 003529497-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-34 ± 17	$0.92^{+0.20}_{-0.20}$	1591^{+58}_{-59}	3175^{+371}_{-359}	$5.575^{+4.929}_{-2.858}$
Alt.	-71 ± 18	$1.22^{+0.20}_{-0.19}$	1587^{+58}_{-61}	3263^{+246}_{-204}	$6.945^{+3.273}_{-2.450}$

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

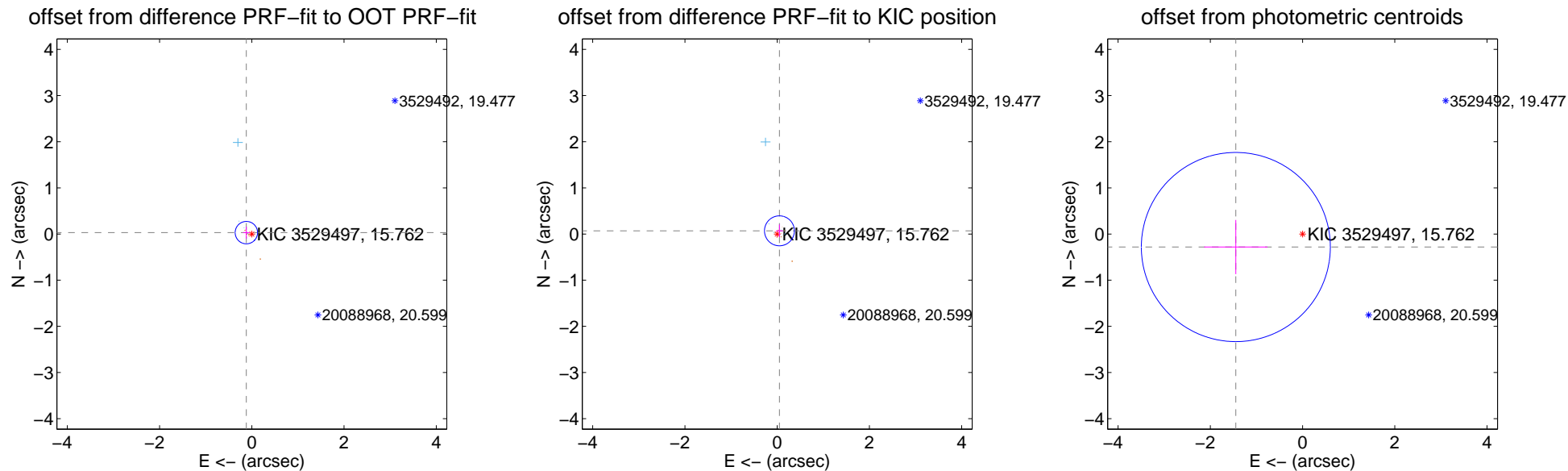
DV Centroid Data

Supplemental centroid analysis for 003529497-01. Kepler magnitude: 15.76. Transit SNR 8.25

There are 7 quarters with good PRF difference image offsets

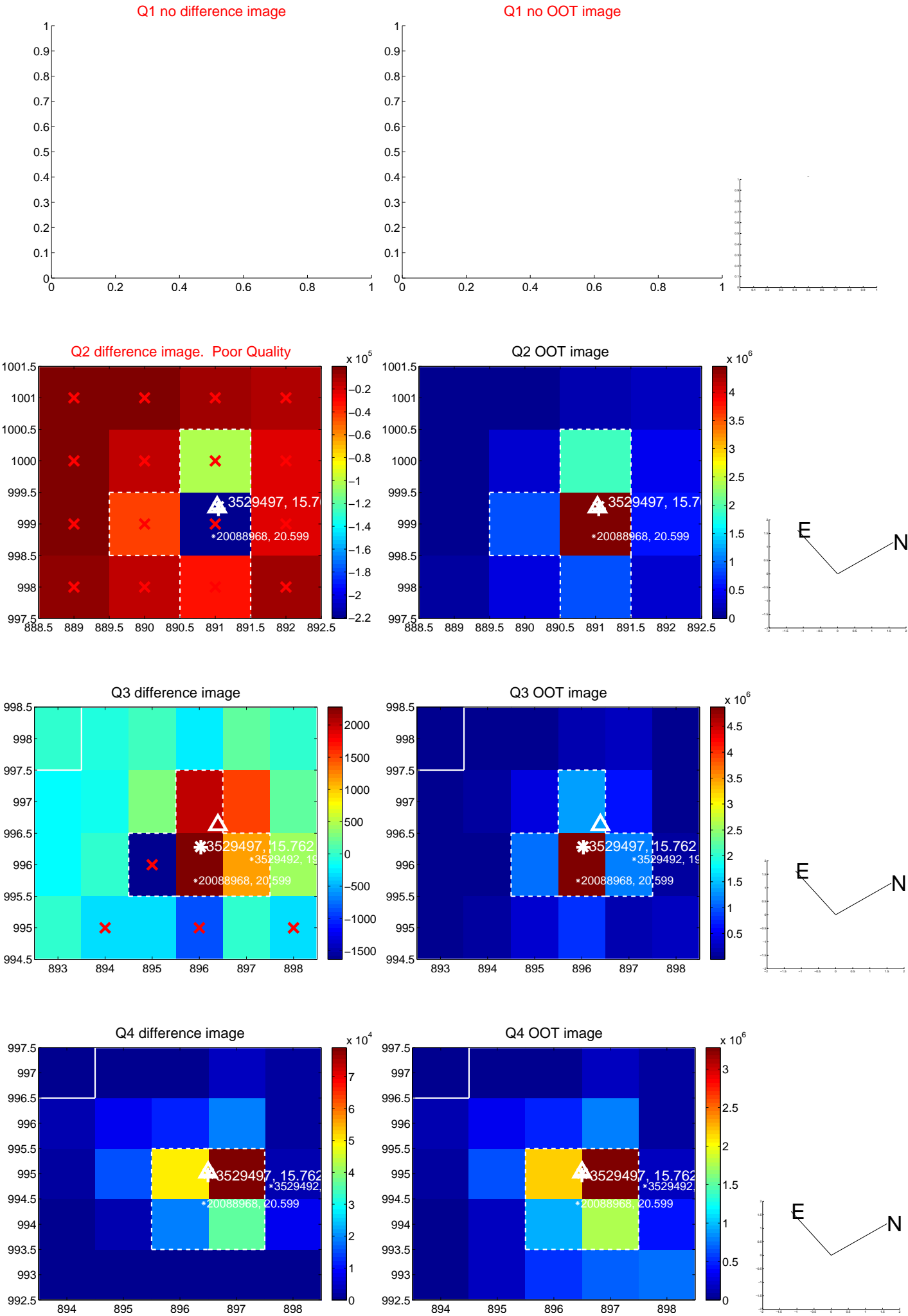
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.122 ± 0.081	1.51	0.118 ± 0.071	0.030 ± 0.131
PRF-fit source offset from KIC position	0.085 ± 0.108	0.79	-0.049 ± 0.074	0.070 ± 0.136
photometric centroid source offset	1.47 ± 0.68	2.16	1.45 ± 0.69	-0.28 ± 0.59

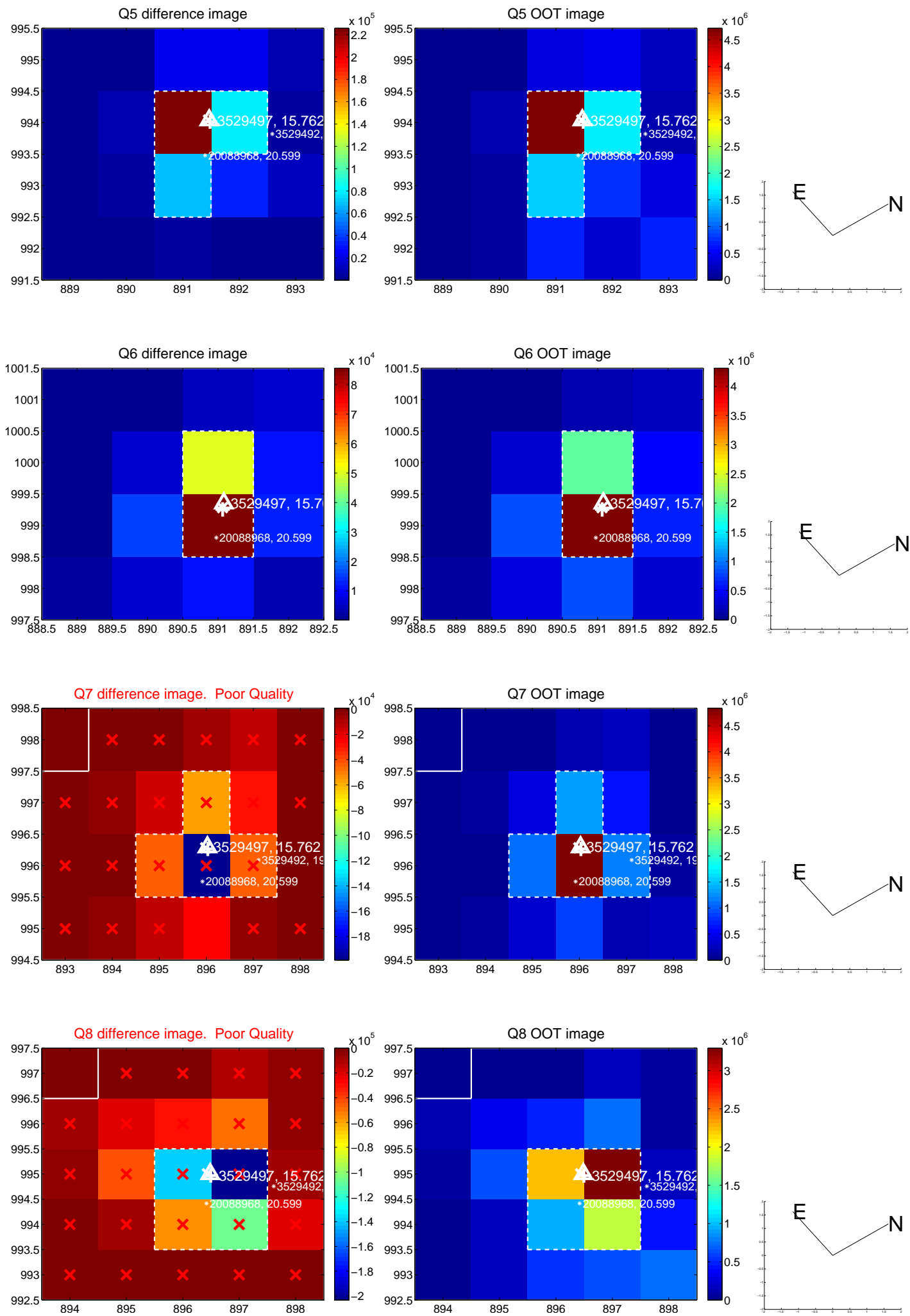


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

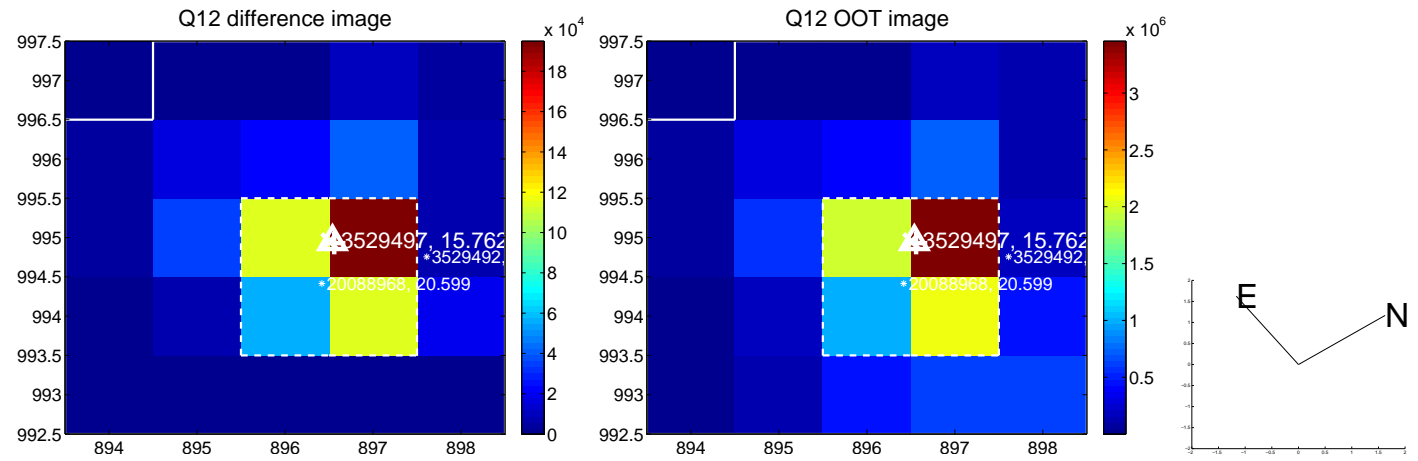
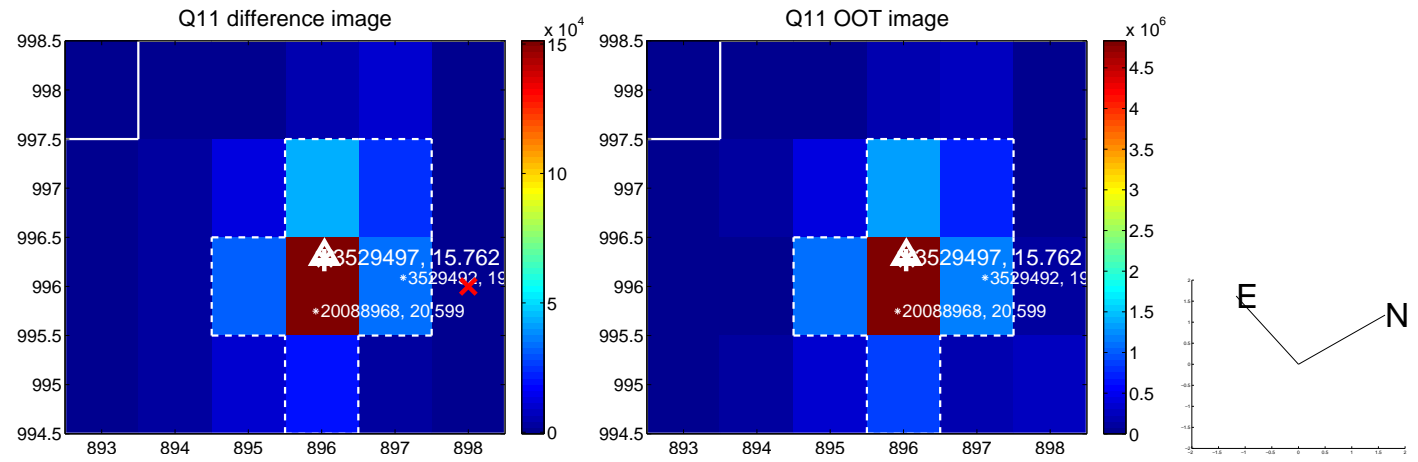
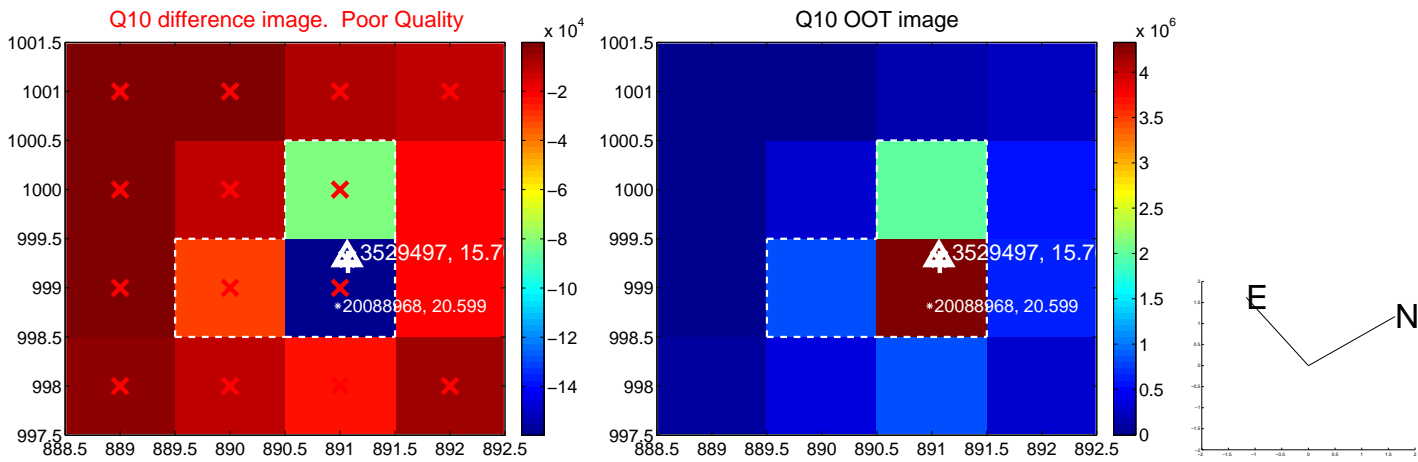
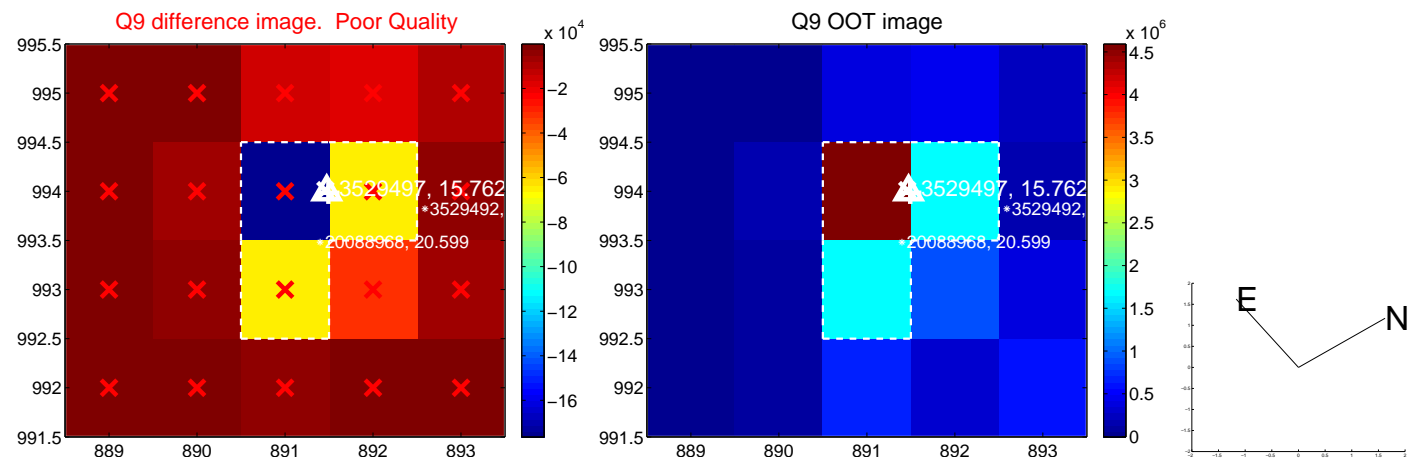
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



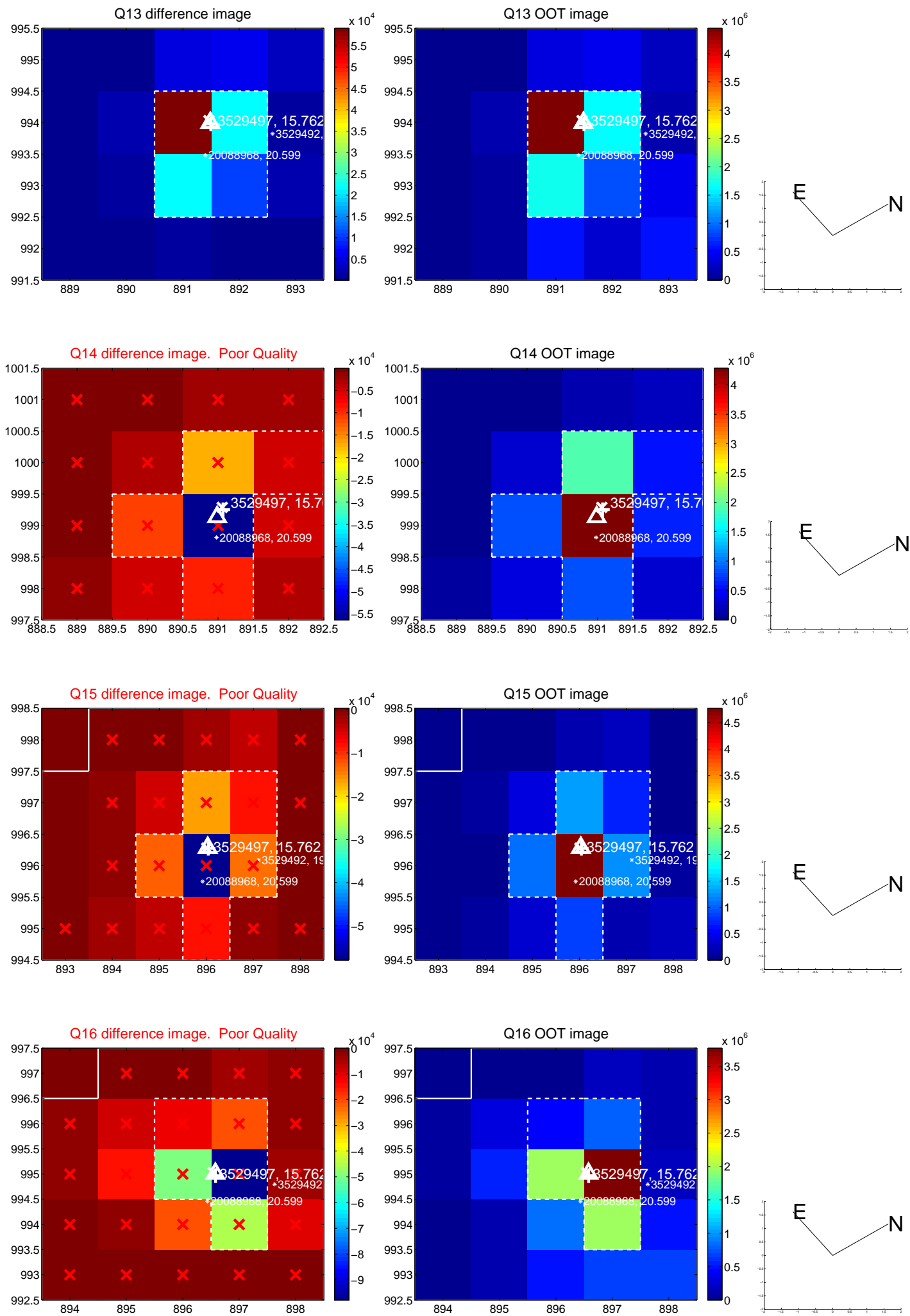
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



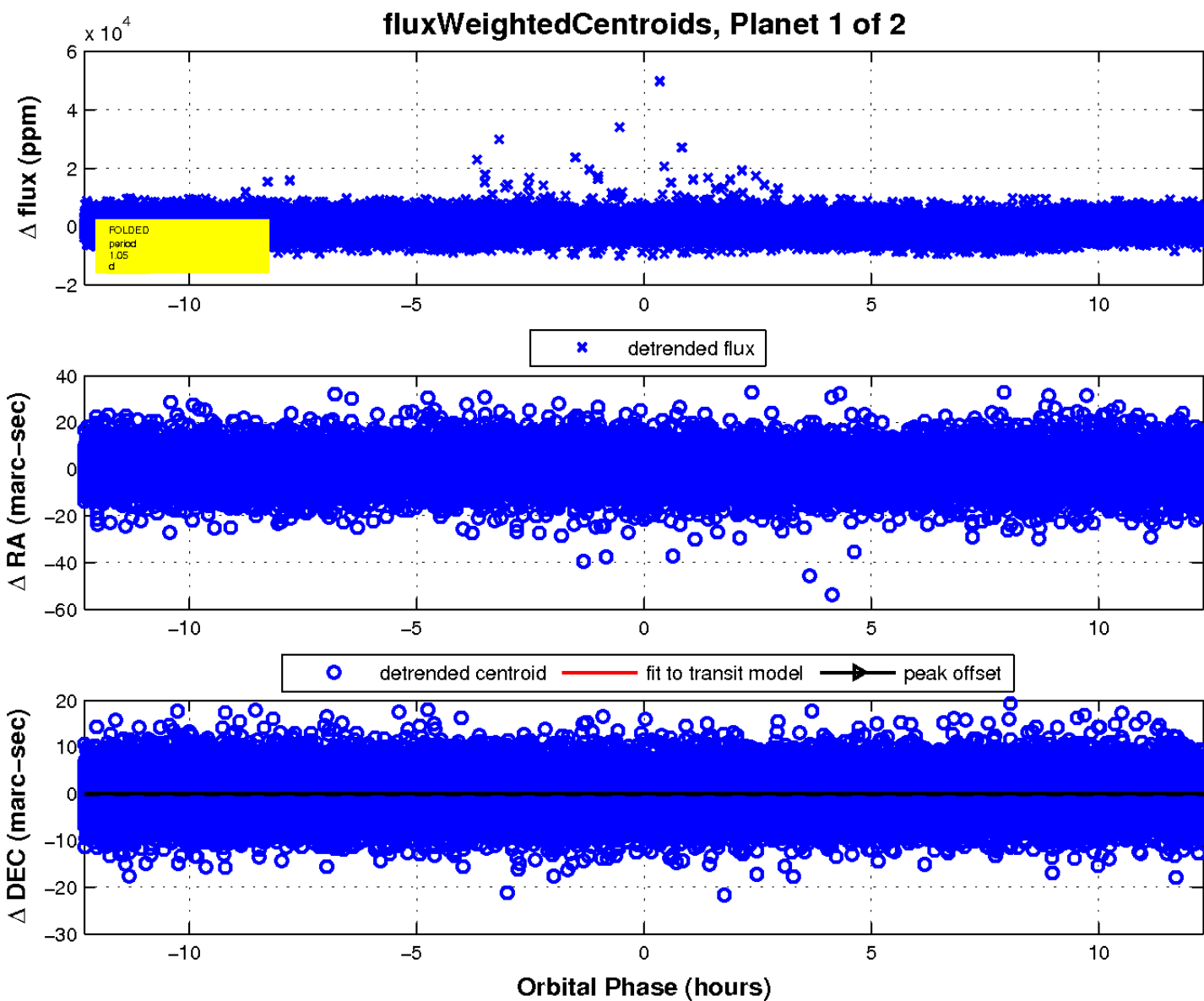
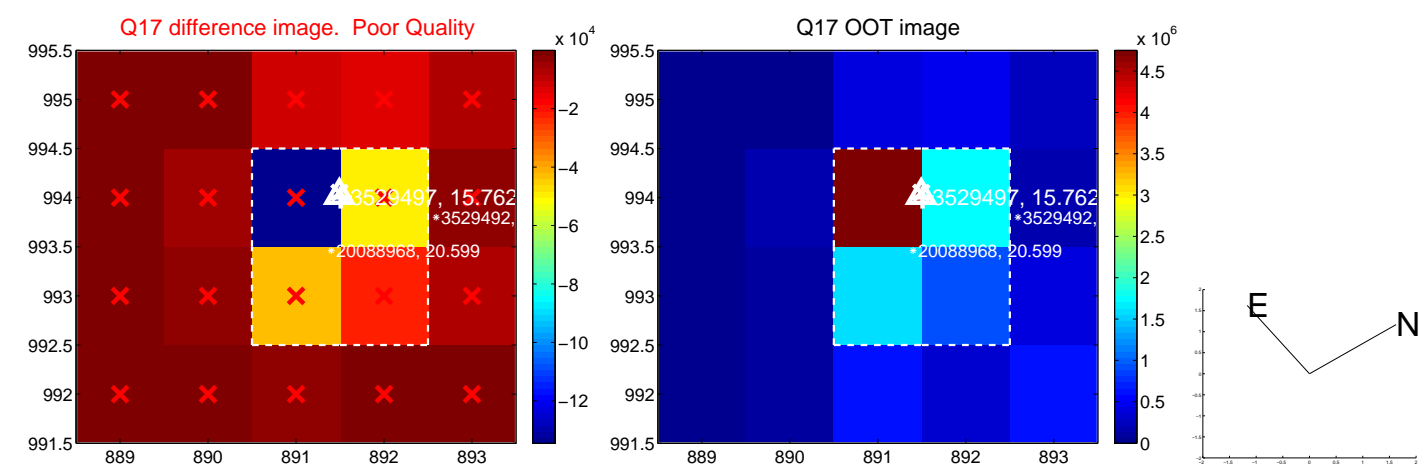
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

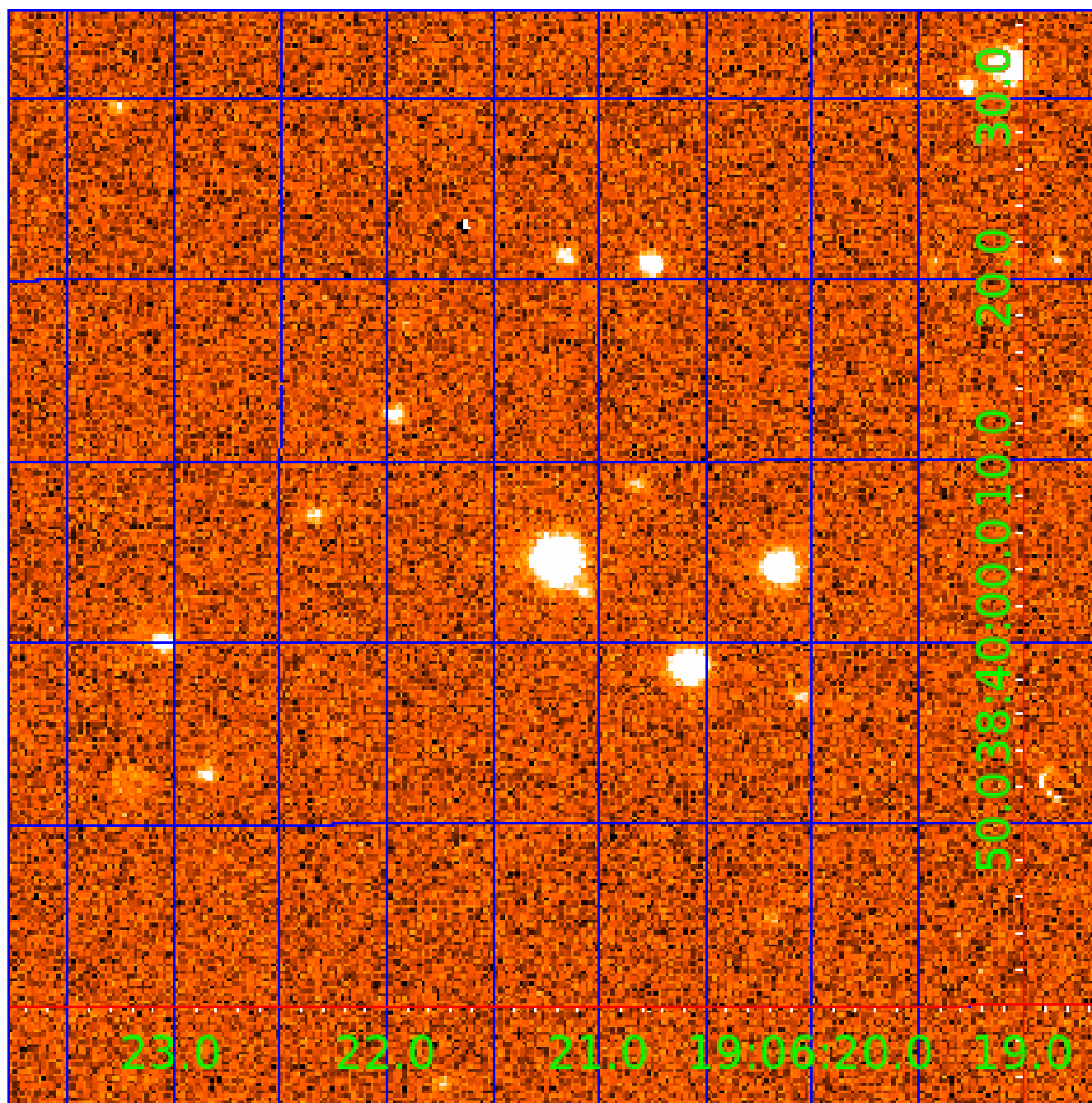


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003529497

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})
003529497-01	OBS	No	1.045024	132.502691	219.5	4.103	8.8	8.3	0.52	4591	0.93	406.47
003529497-02	OBS	No	204.387970	255.222227	3525.4	2.404	10.4	7.9	0.52	4591	3.74	0.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003529497-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003529497-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

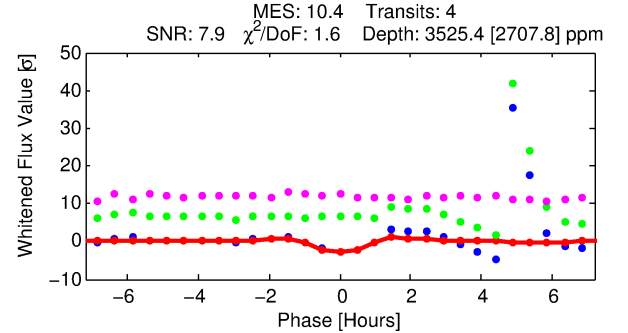
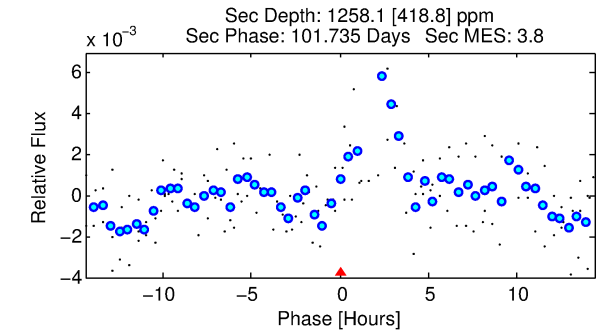
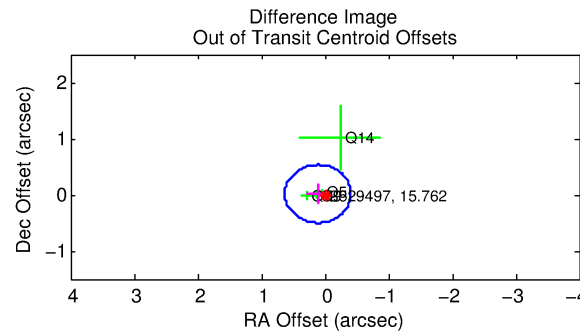
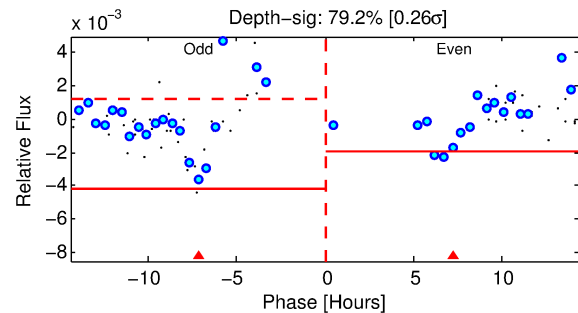
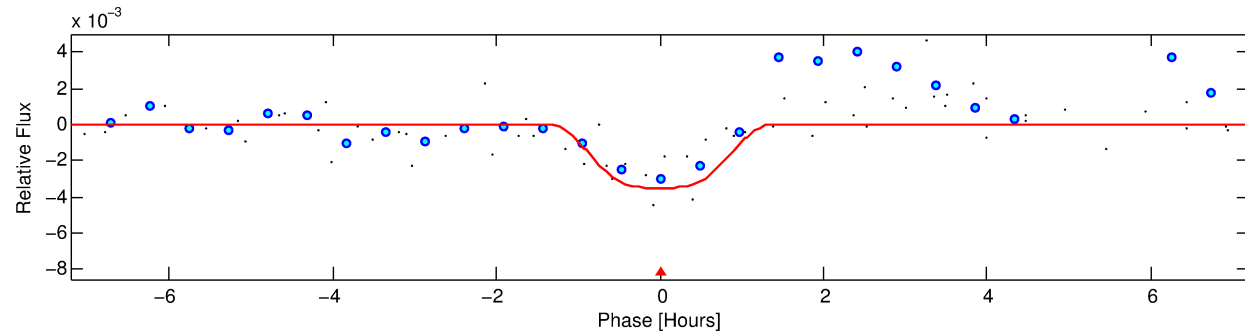
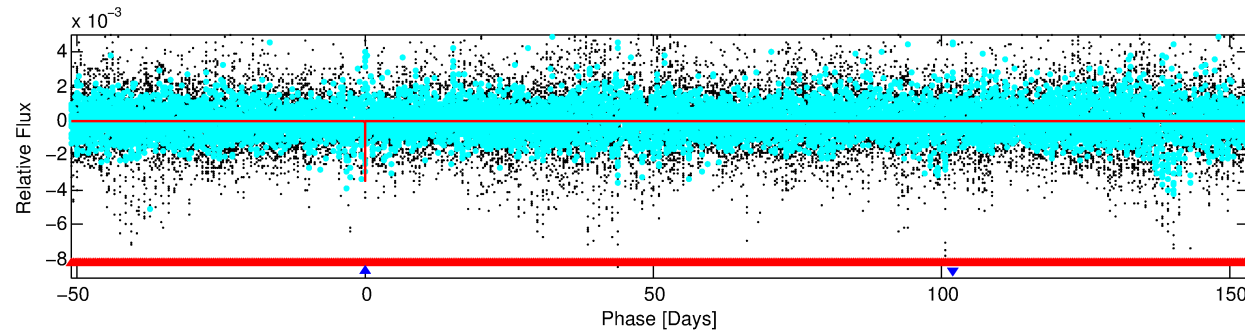
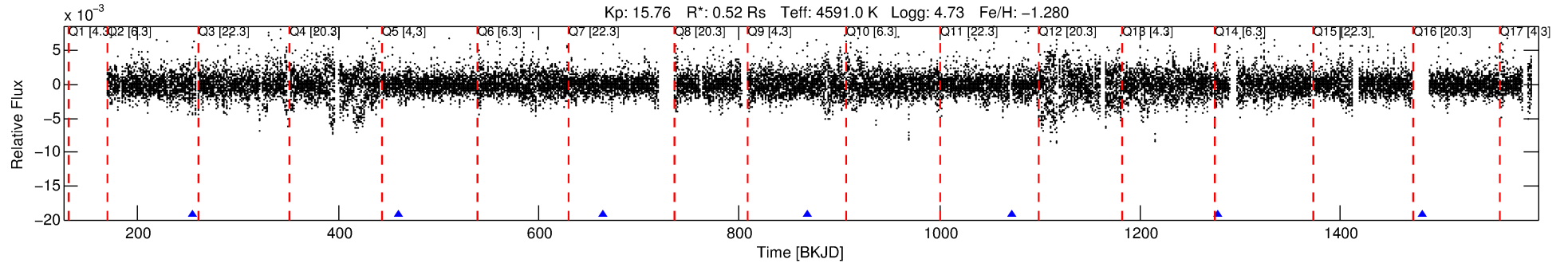
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003529497-02

No Significant Match Found

DV One-Page Summary

KIC: 3529497 Candidate: 2 of 2 Period: 204.388 d



DV Fit Results:

Period = 204.38797 [0.00719] d
Epoch = 255.2222 [0.0234] BKJD
Rp/R* = 0.0659 [0.0559]
a/R* = 370.62 [807.70]
b = 0.90 [0.49]
Seff = 0.36 [0.06]
Teq = 197 [8] K
Rp = 3.74 [3.18] Re
a = 0.5483 [0.0351] AU
Ag = 14862.07 [25706.13] [0.58 sigma]
Teffp = 3367 [1459] K [2.17 sigma]

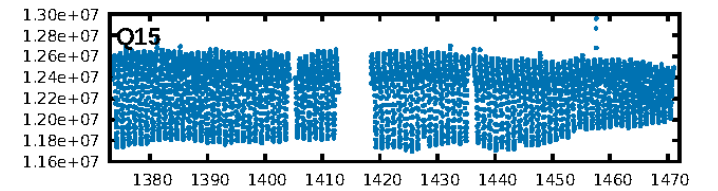
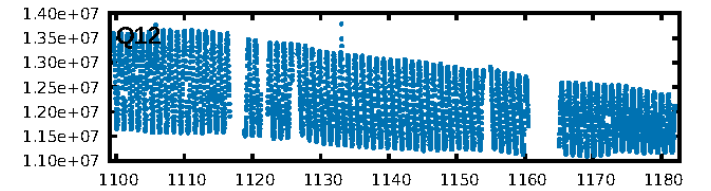
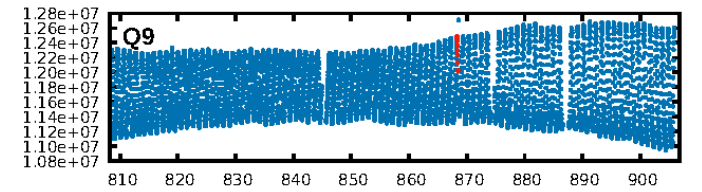
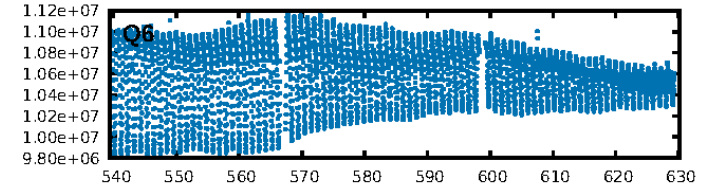
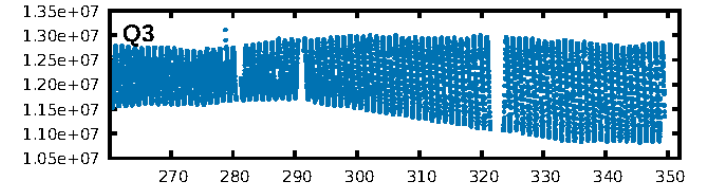
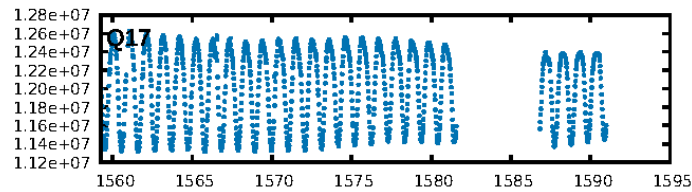
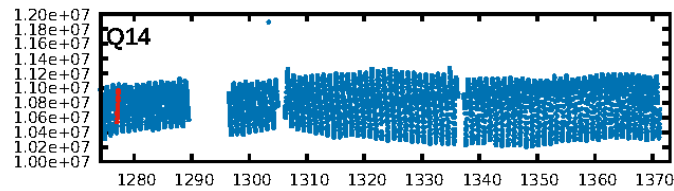
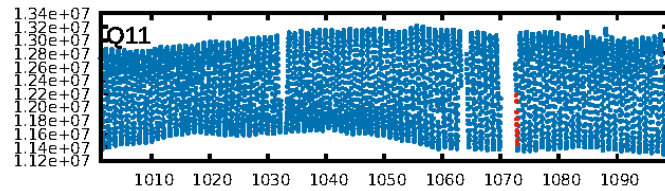
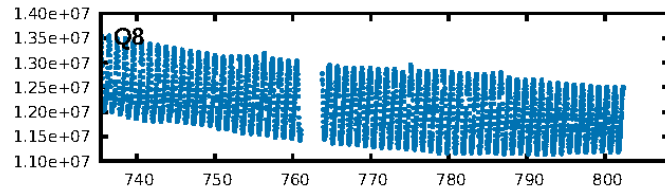
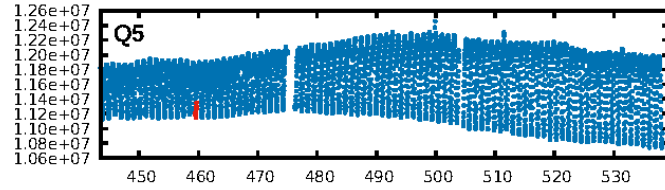
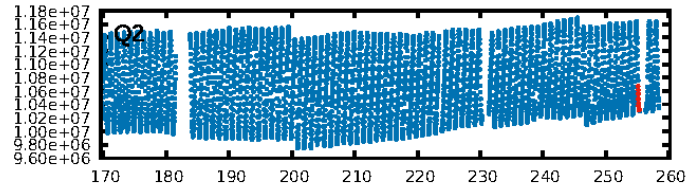
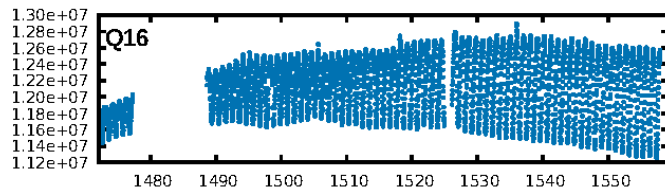
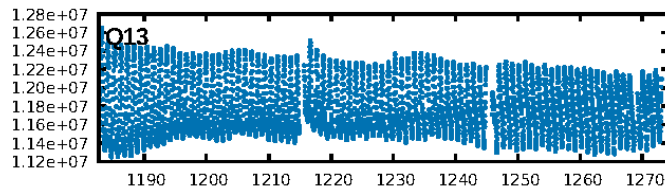
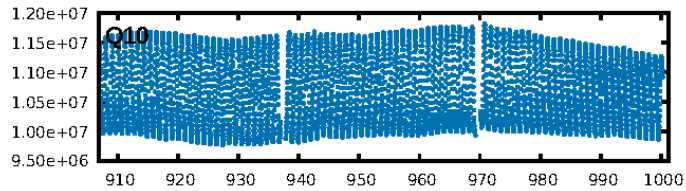
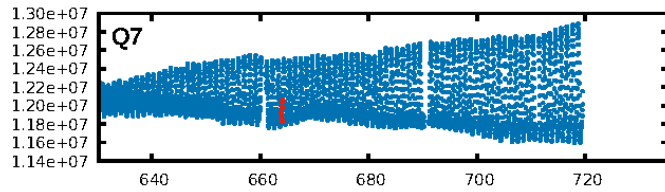
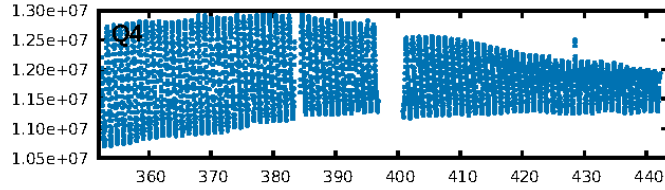
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1026.18 sigma]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 5.7%
ModelChiSquareGof-sig: 93.8%
Bootstrap-pfa: 5.28e-13
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.097
Centroid-sig: N/A
Centroid-so: 1.375 arcsec [1.80 sigma]
OotOffset-rm: 0.116 arcsec [0.67 sigma]
KicOffset-rm: 0.061 arcsec [0.24 sigma]
OotOffset-st: 1/1/0/2 [4]
KicOffset-st: 1/1/0/2 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.25 [1/4]

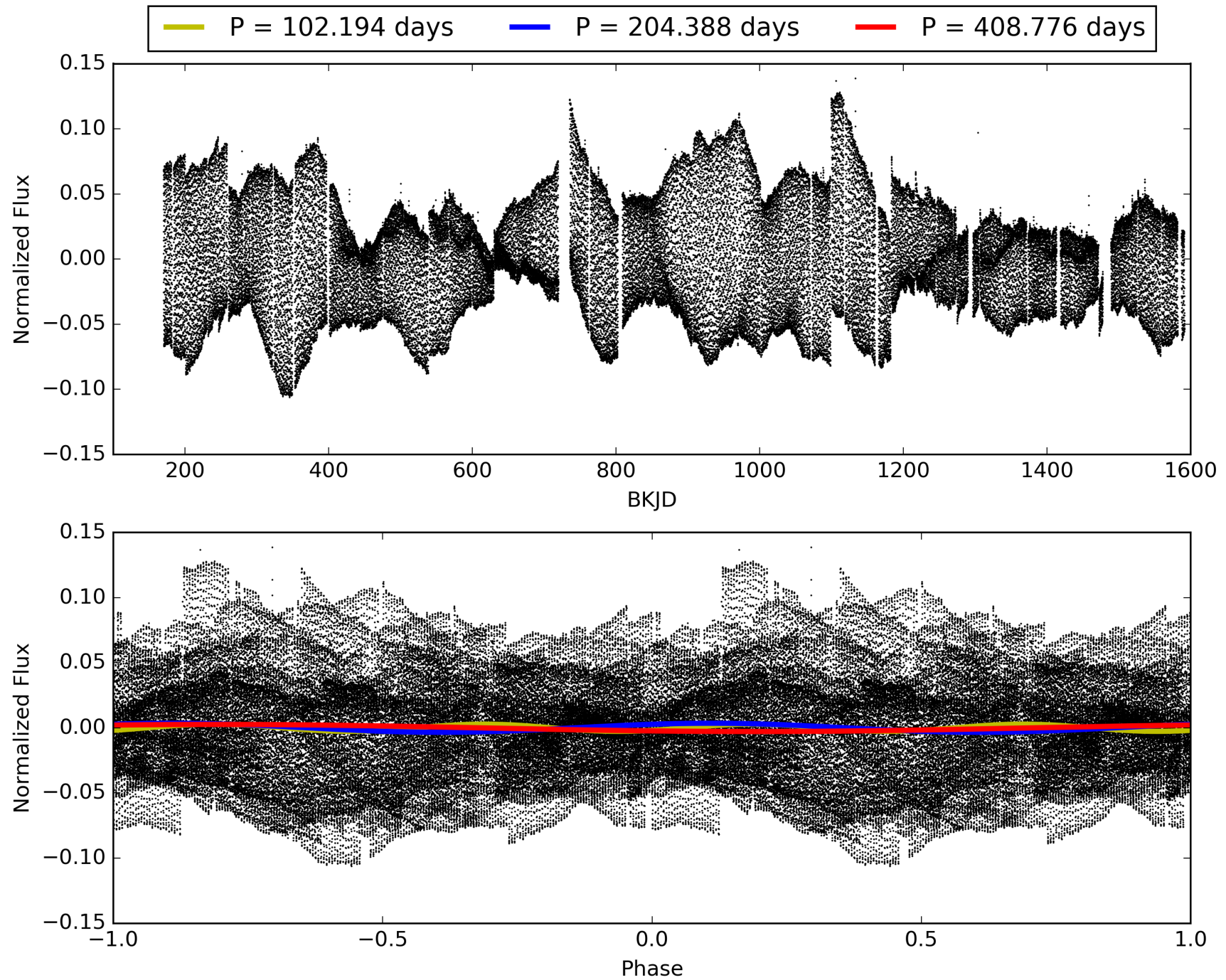
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:00:14 Z

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

TCE 003529497-02, PDC Light Curves

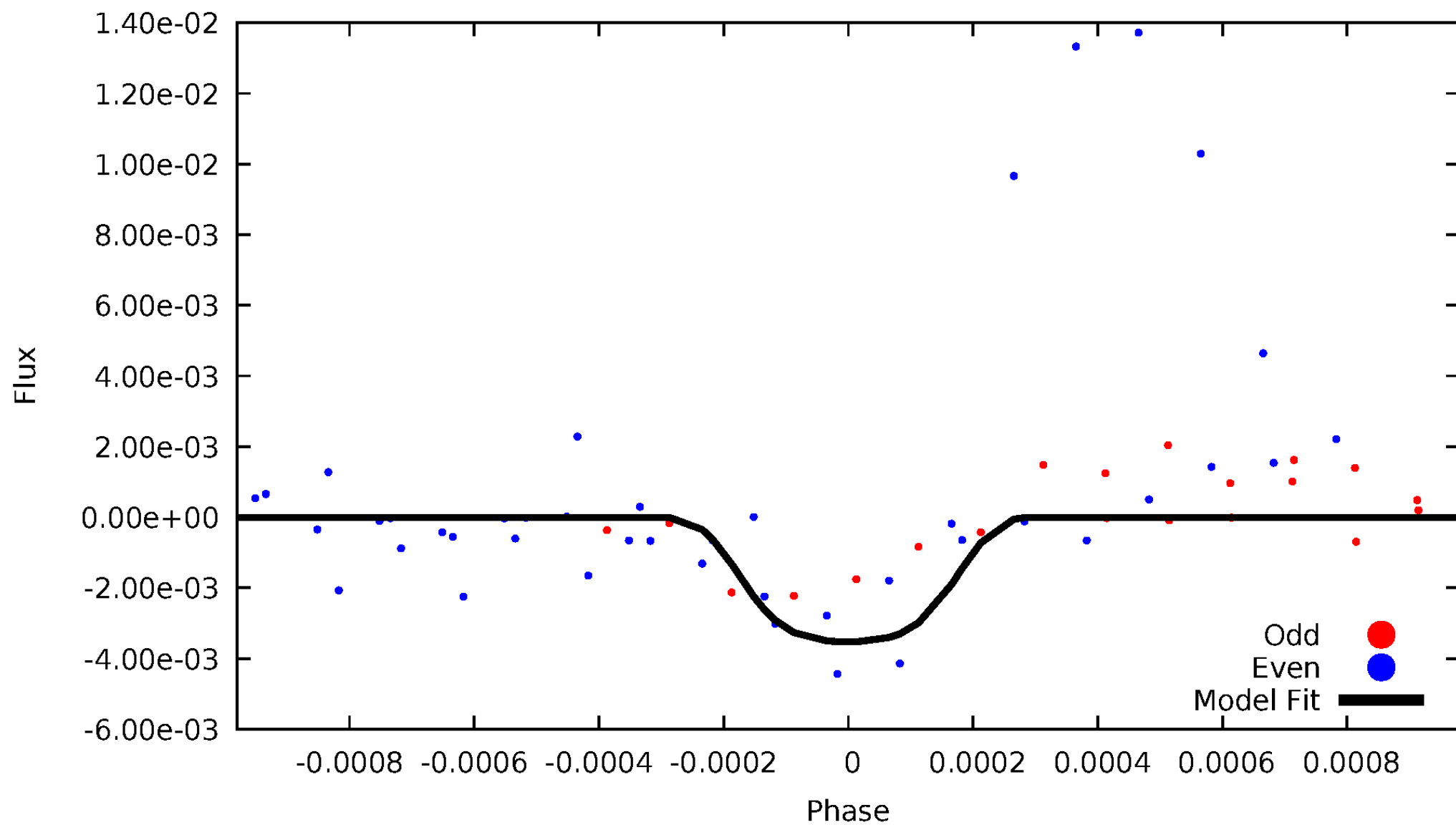


TCE 003529497-02



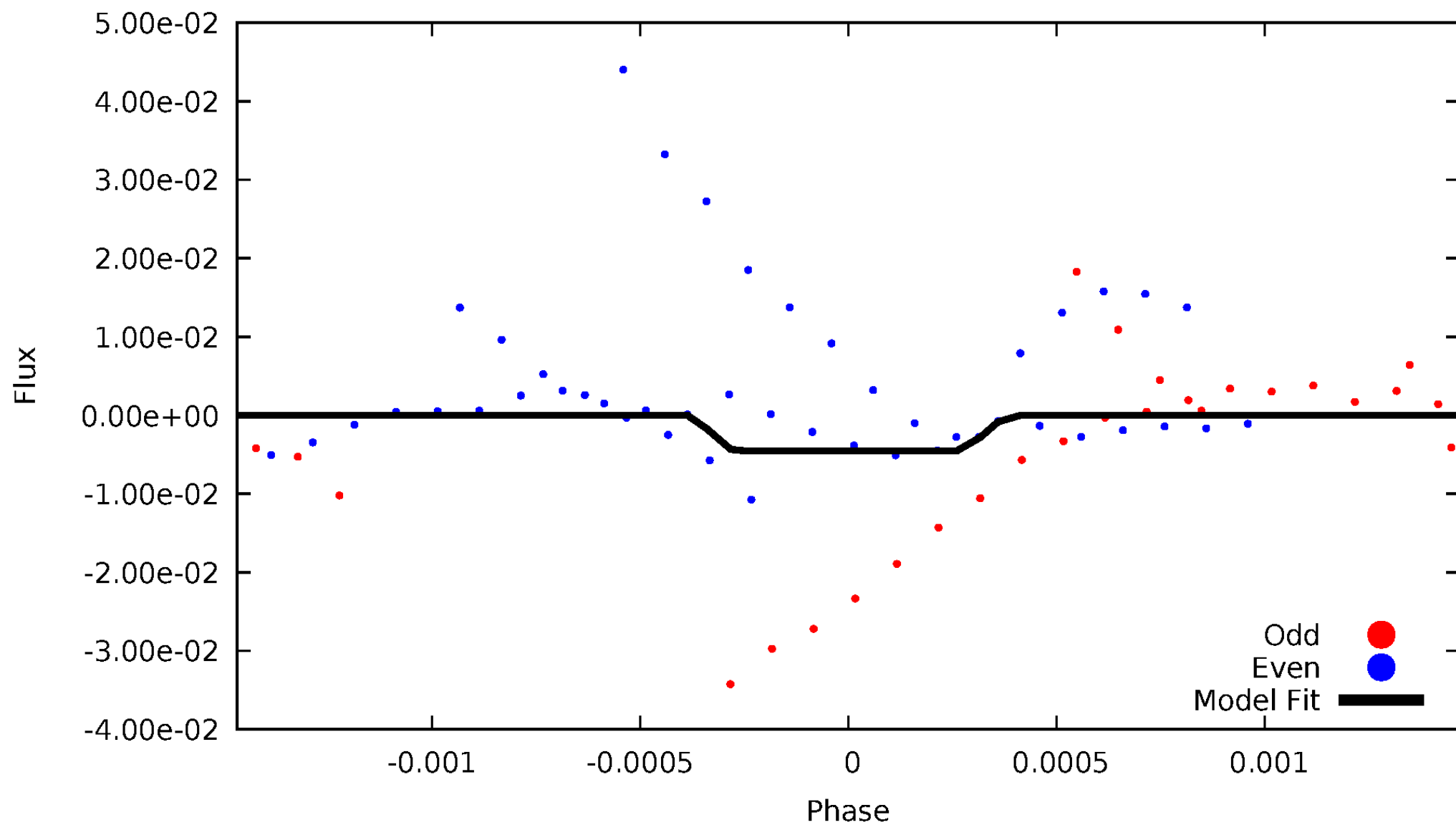
DV Odd/Even

TCE 003529497-02



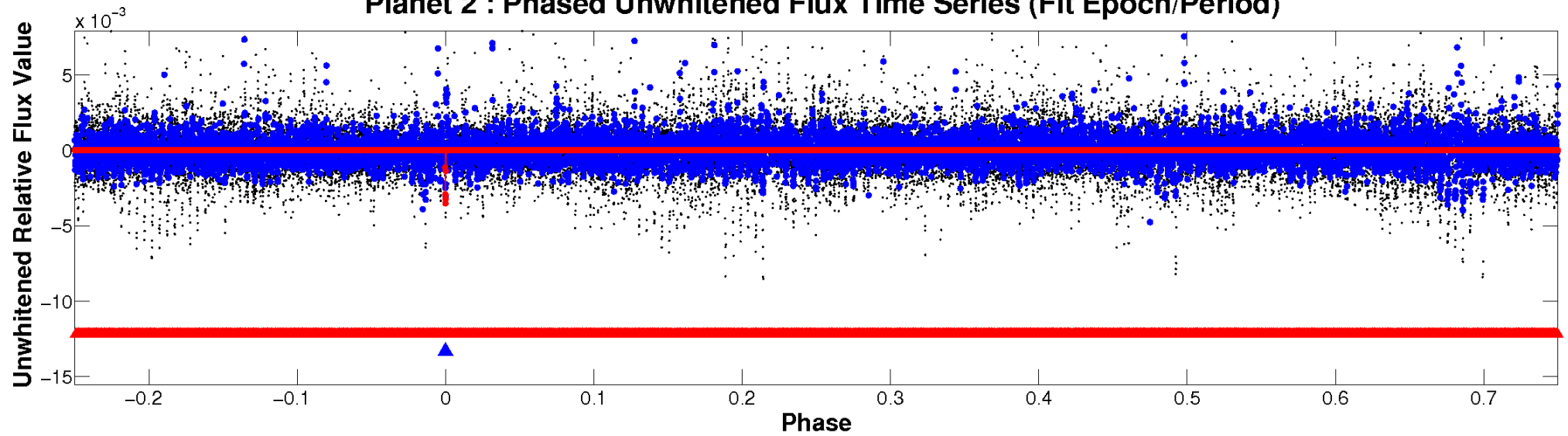
ALT Odd/Even

TCE 003529497-02

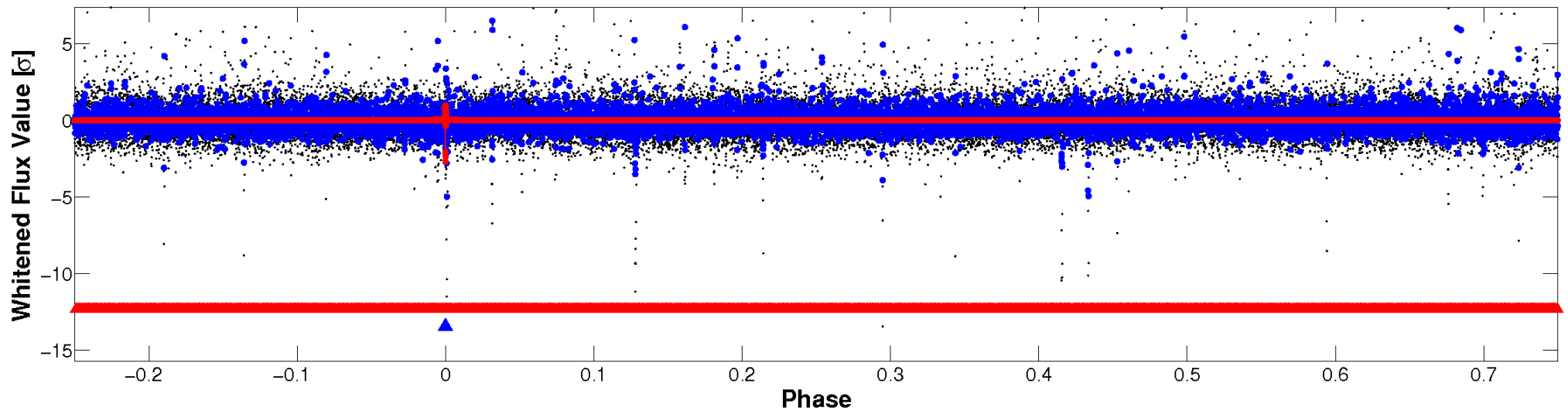


Non-Whitened Vs. Whitened Light Curve

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

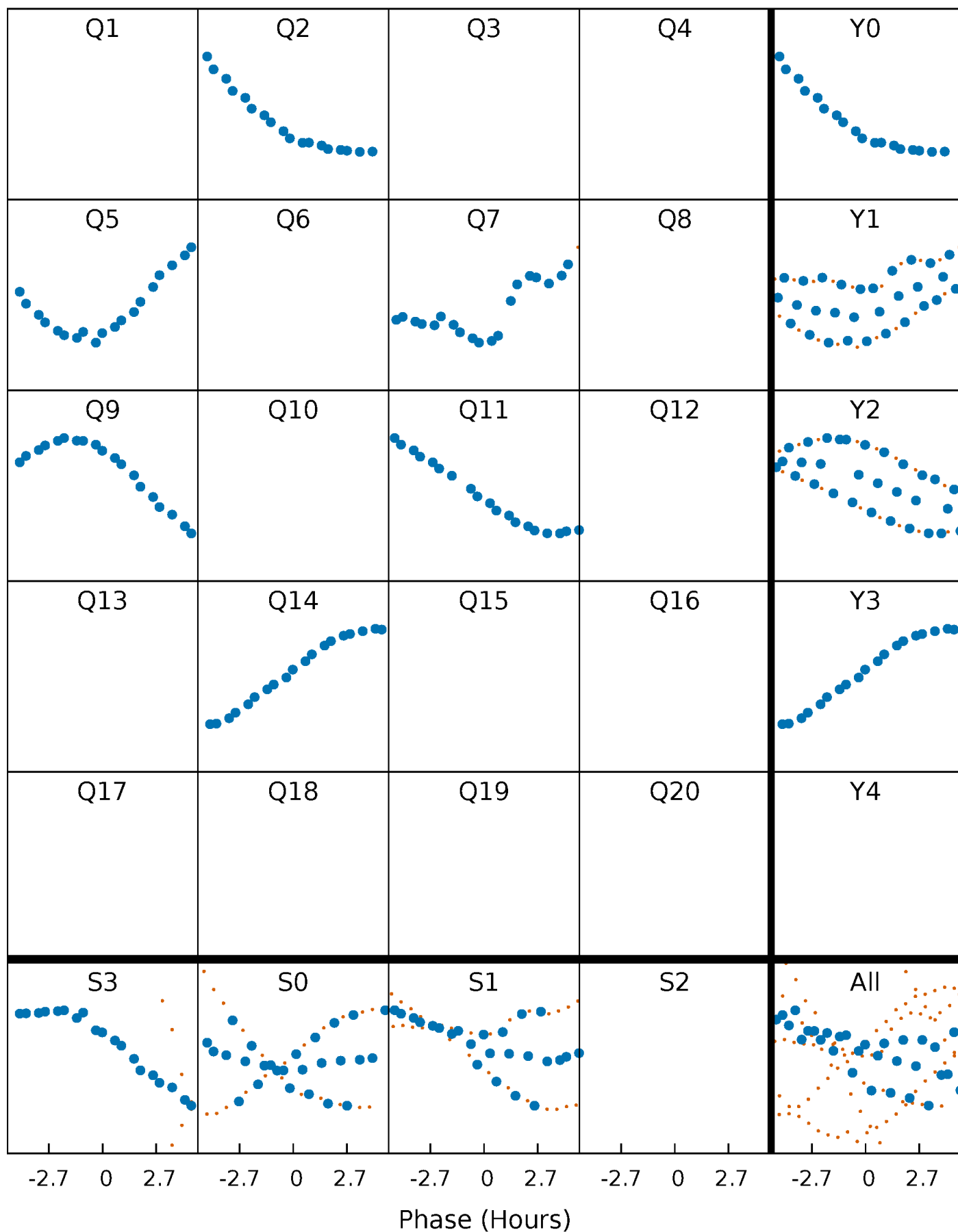


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



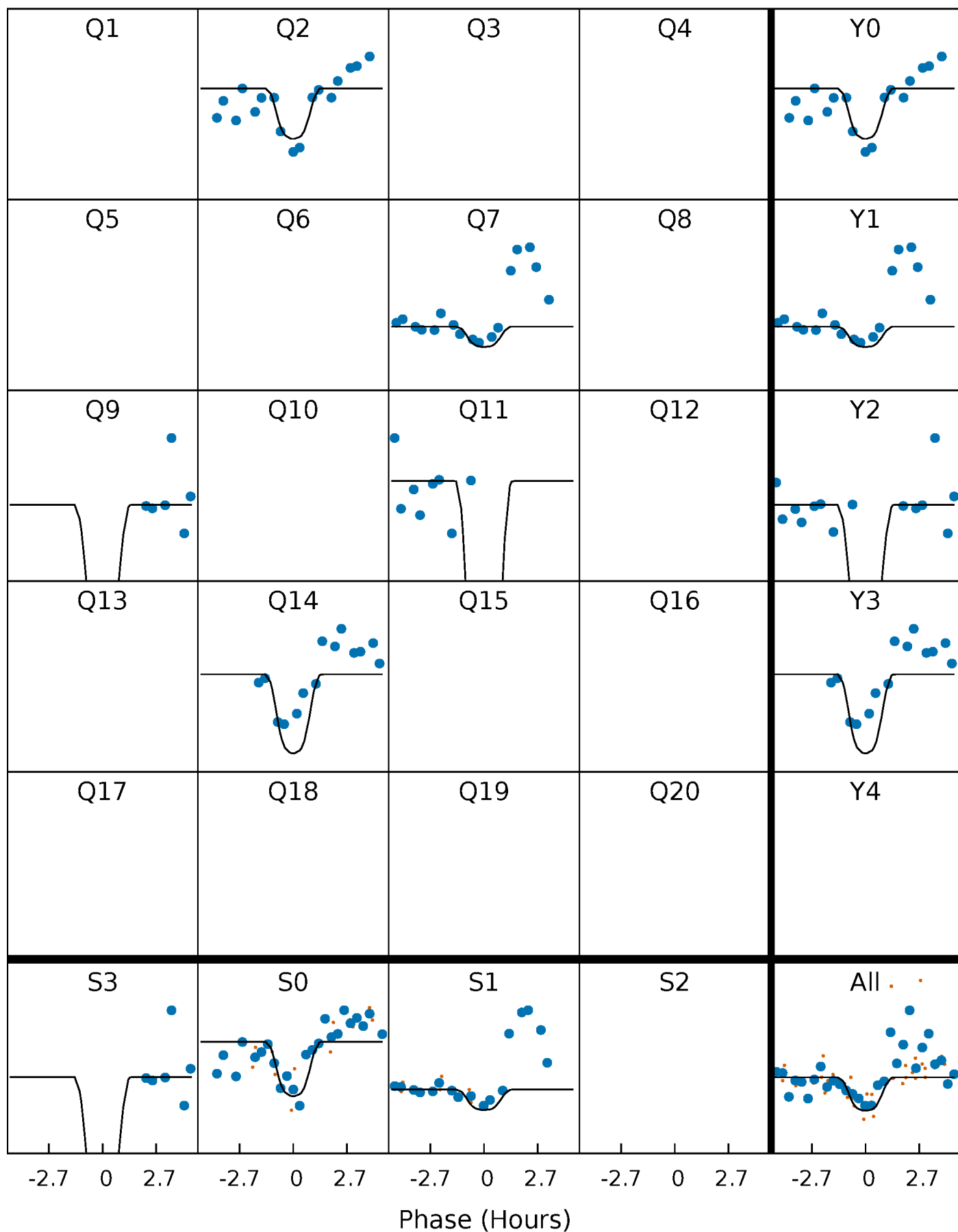
PDC Quarter-Phased Transit Curves

TCE 003529497-02 P=204.387970 Days $T_0=255.222227$ (BKJD)



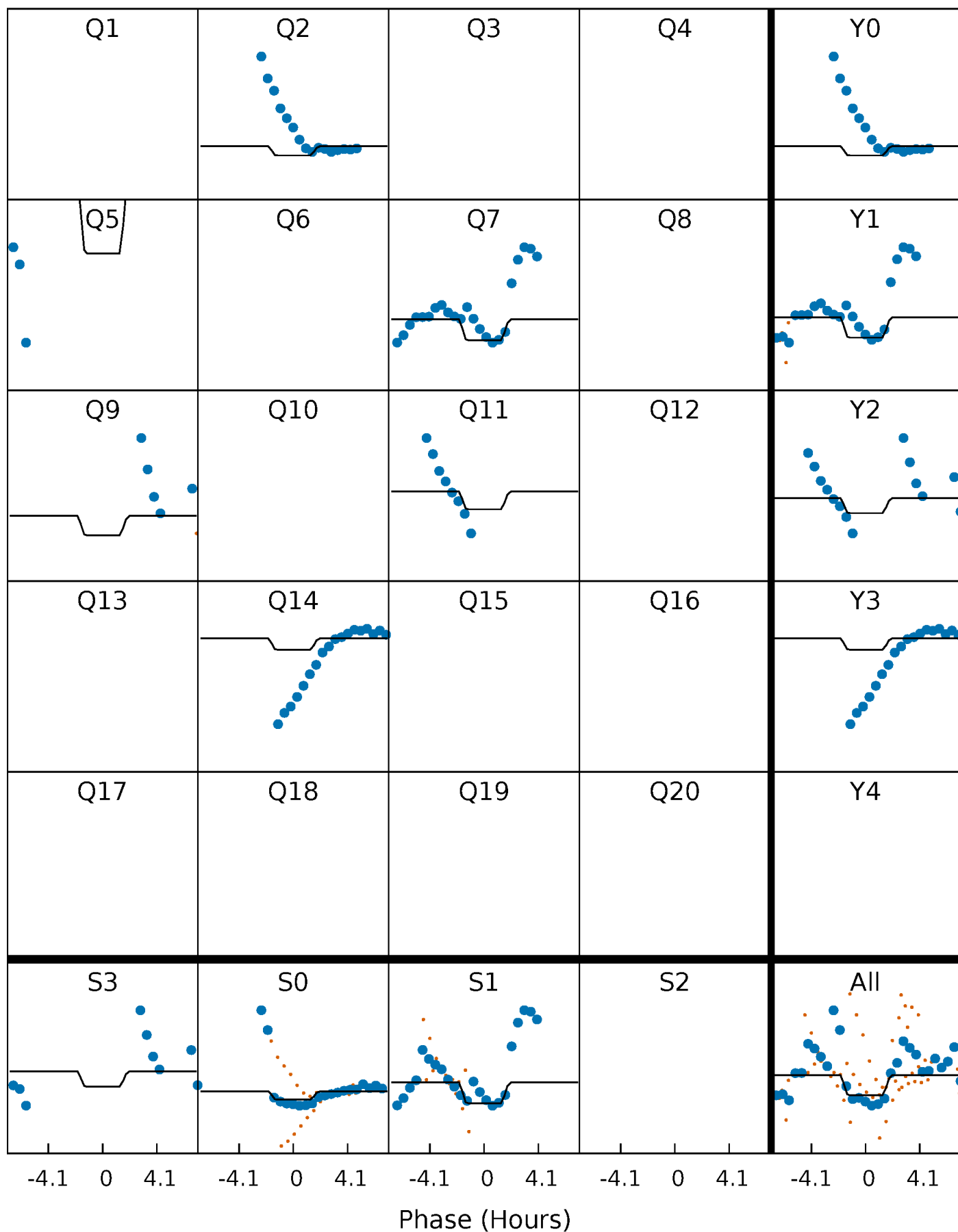
DV Quarter-Phased Transit Curves

TCE 003529497-02 $P=204.387970$ Days $T_0=255.222227$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

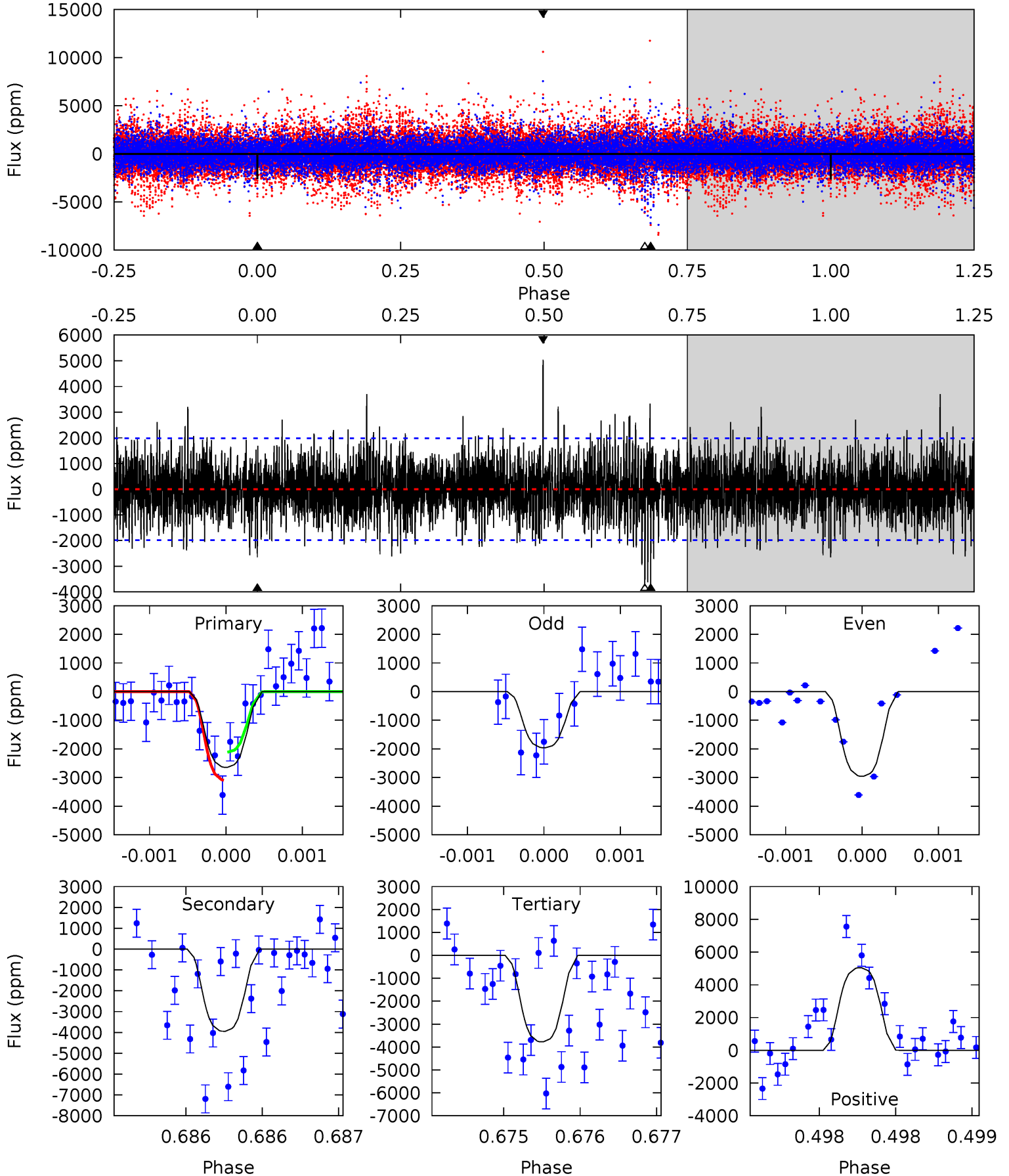
TCE 003529497-02 P=204.390951 Days $T_0=255.186040$ (BKJD)



DV Model-Shift Uniqueness Test

003529497-02, P = 204.387970 Days, E = 50.834257 Days

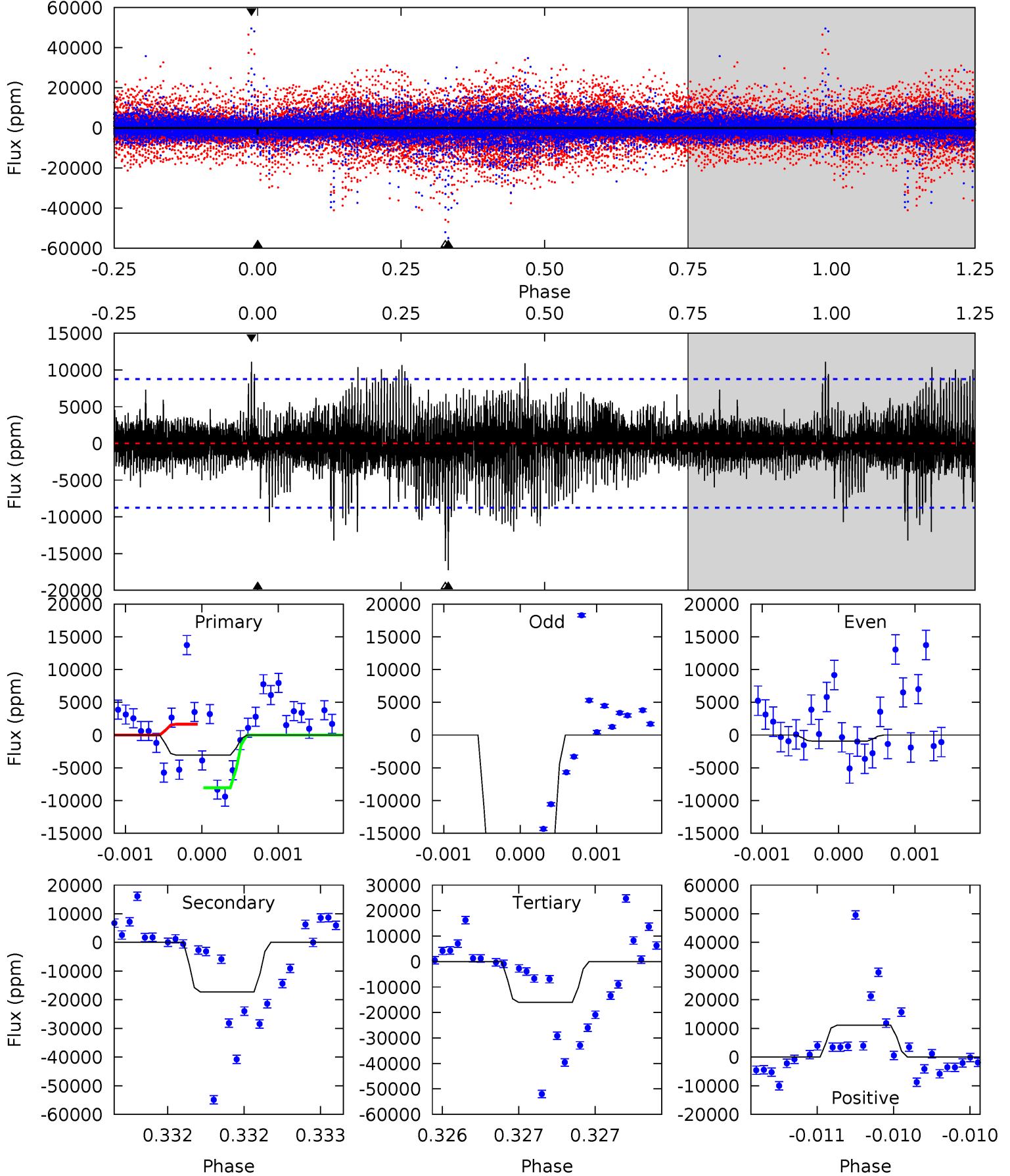
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.38	11.0	10.5	14.1	5.54	3.43	2.37	-3.16	-6.69	0.47	-3.05	1.18	1.22	0.56	1.37



Alt Model-Shift Uniqueness Test

003529497-02, P = 204.390951 Days, E = 50.795089 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.94	10.9	10.1	6.99	5.51	3.39	1.74	-8.14	-5.05	0.77	3.86	5.55	1.10	0.39	2.10



Stellar Parameters For KIC 003529497

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4591^{+145}_{-161}	$4.727^{+0.052}_{-0.028}$	$-1.280^{+0.300}_{-0.300}$	$0.520^{+0.032}_{-0.039}$	$0.525^{+0.035}_{-0.026}$	$5.266^{+1.043}_{-0.598}$
	+3%/-4%	+1%/-1%	+23%/-23%	+6%/-8%	+7%/-5%	+20%/-11%
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 003529497-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3946 ± 358	$4.22^{+2.71}_{-2.45}$	274^{+10}_{-11}	4291^{+1861}_{-700}	$36188^{+172349}_{-22542}$
Alt.	-17235 ± 1588	$4.05^{+2.96}_{-2.36}$	275^{+10}_{-11}	6039^{+4279}_{-1343}	$180956^{+812849}_{-120675}$

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

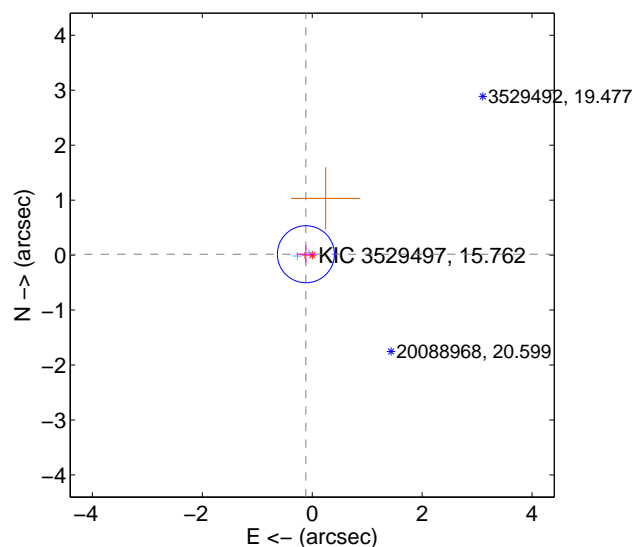
Supplemental centroid analysis for 003529497-02. Kepler magnitude: 15.76. Transit SNR 7.88

There are 2 quarters with good PRF difference image offsets

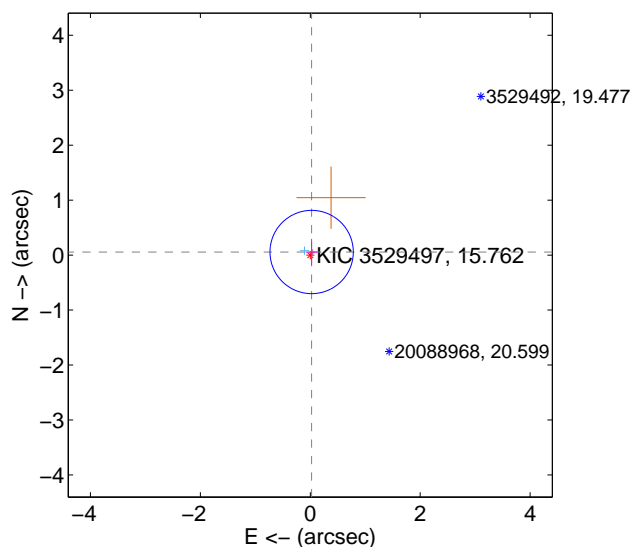
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.116 ± 0.173	0.67	0.115 ± 0.173	0.016 ± 0.159
PRF-fit source offset from KIC position	0.061 ± 0.253	0.24	-0.025 ± 0.109	0.056 ± 0.239
photometric centroid source offset	1.38 ± 0.76	1.80	-0.97 ± 0.76	-0.98 ± 0.77

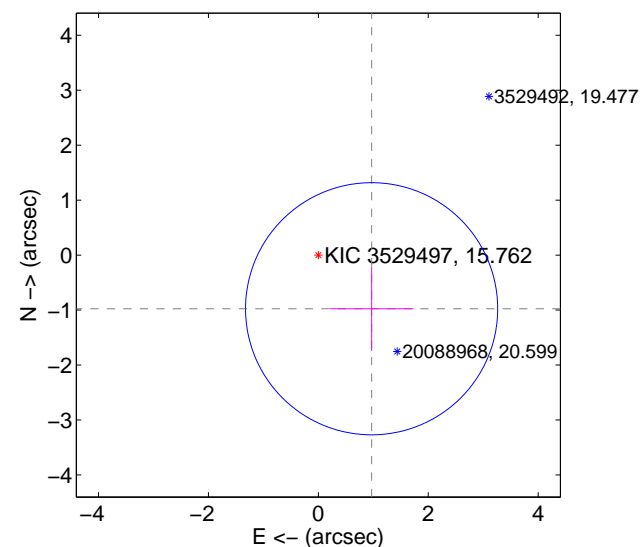
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

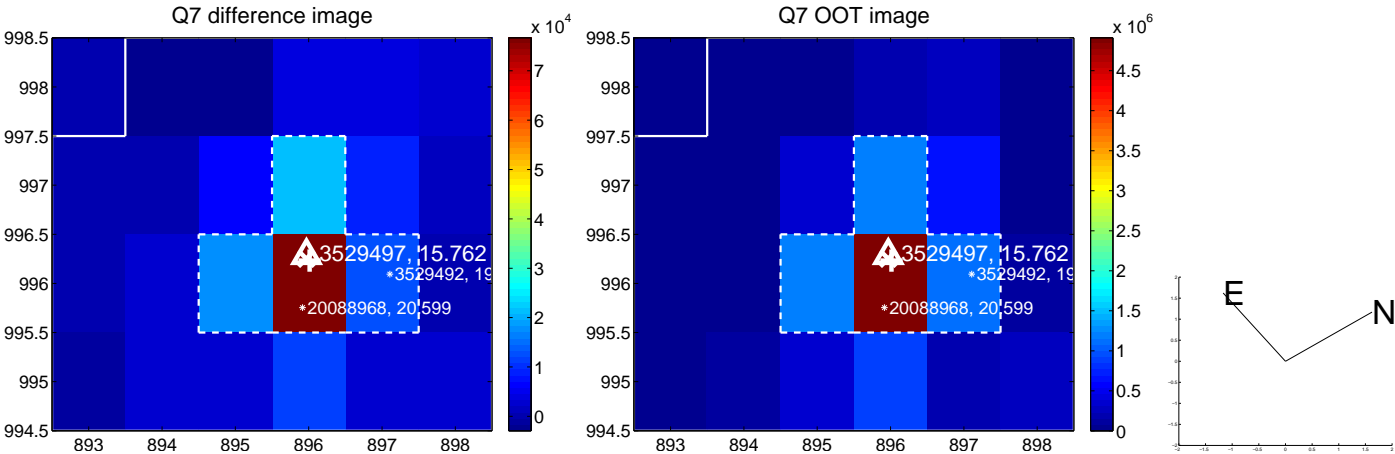
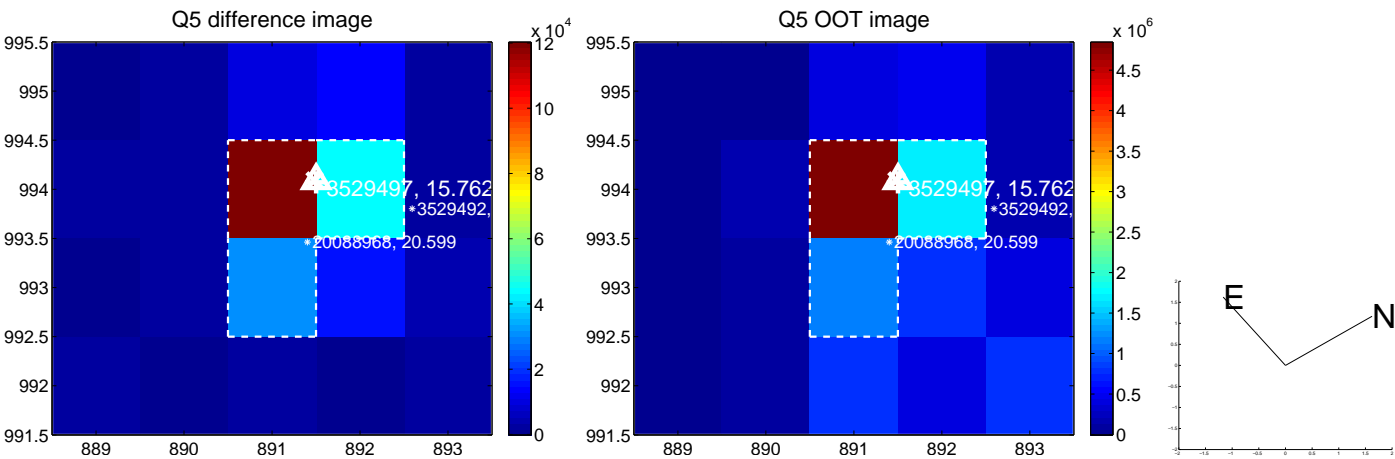


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

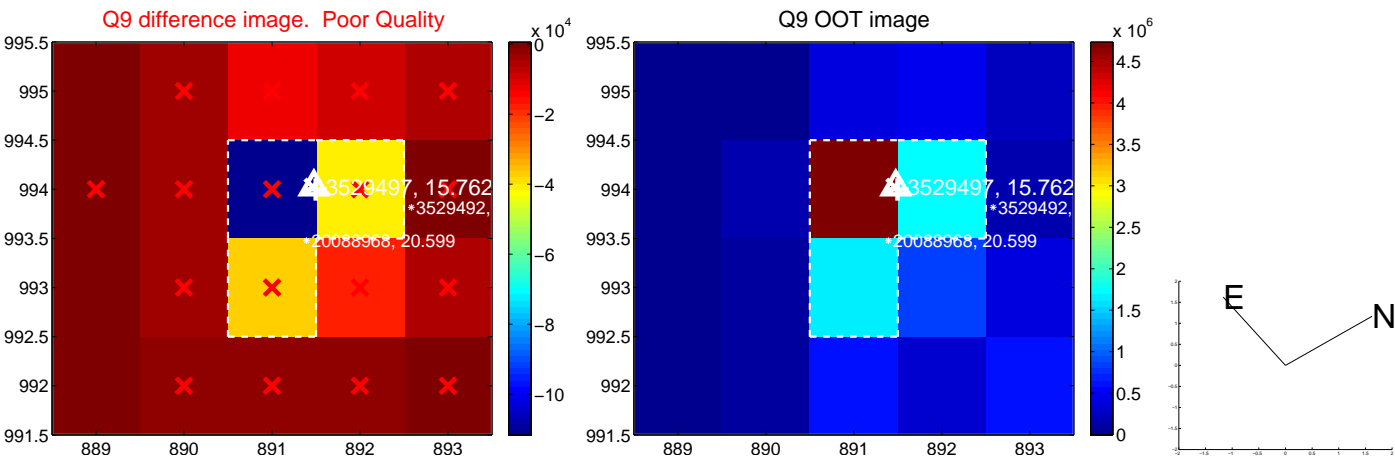
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

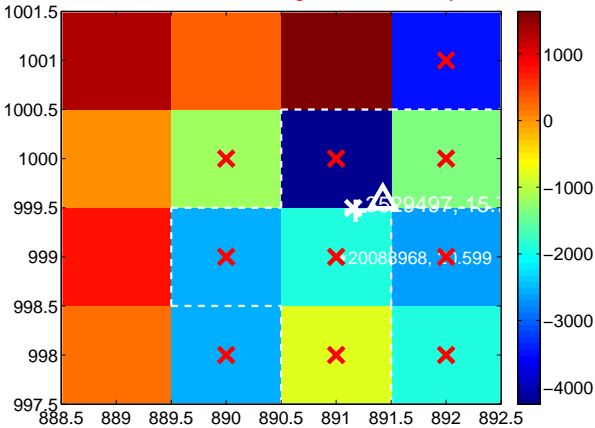
Q13 no difference image



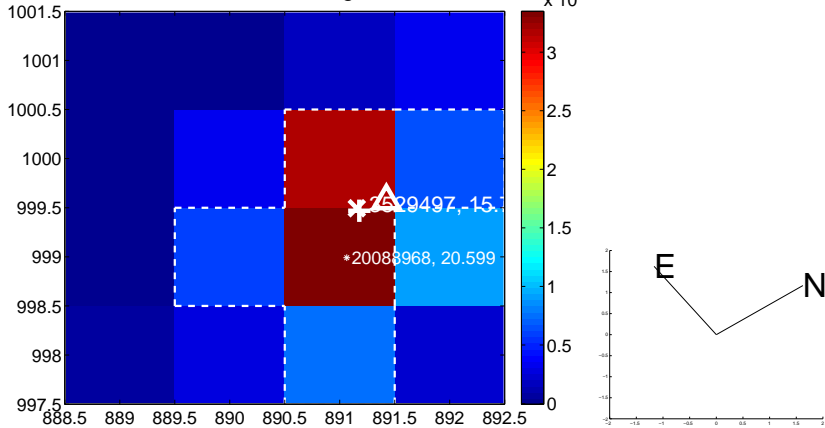
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



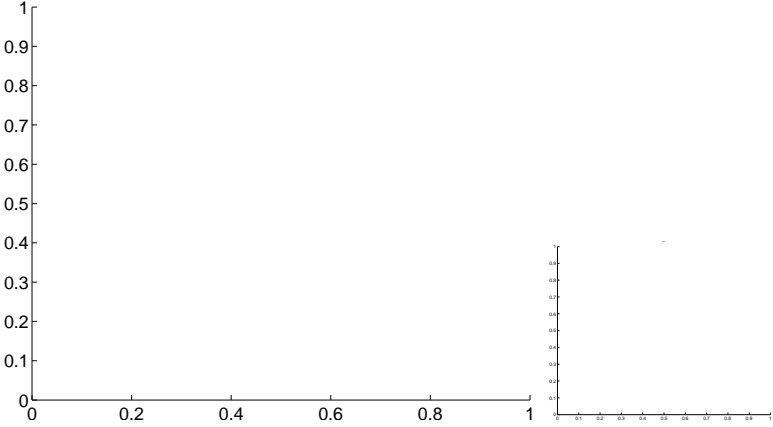
Q15 no OOT image



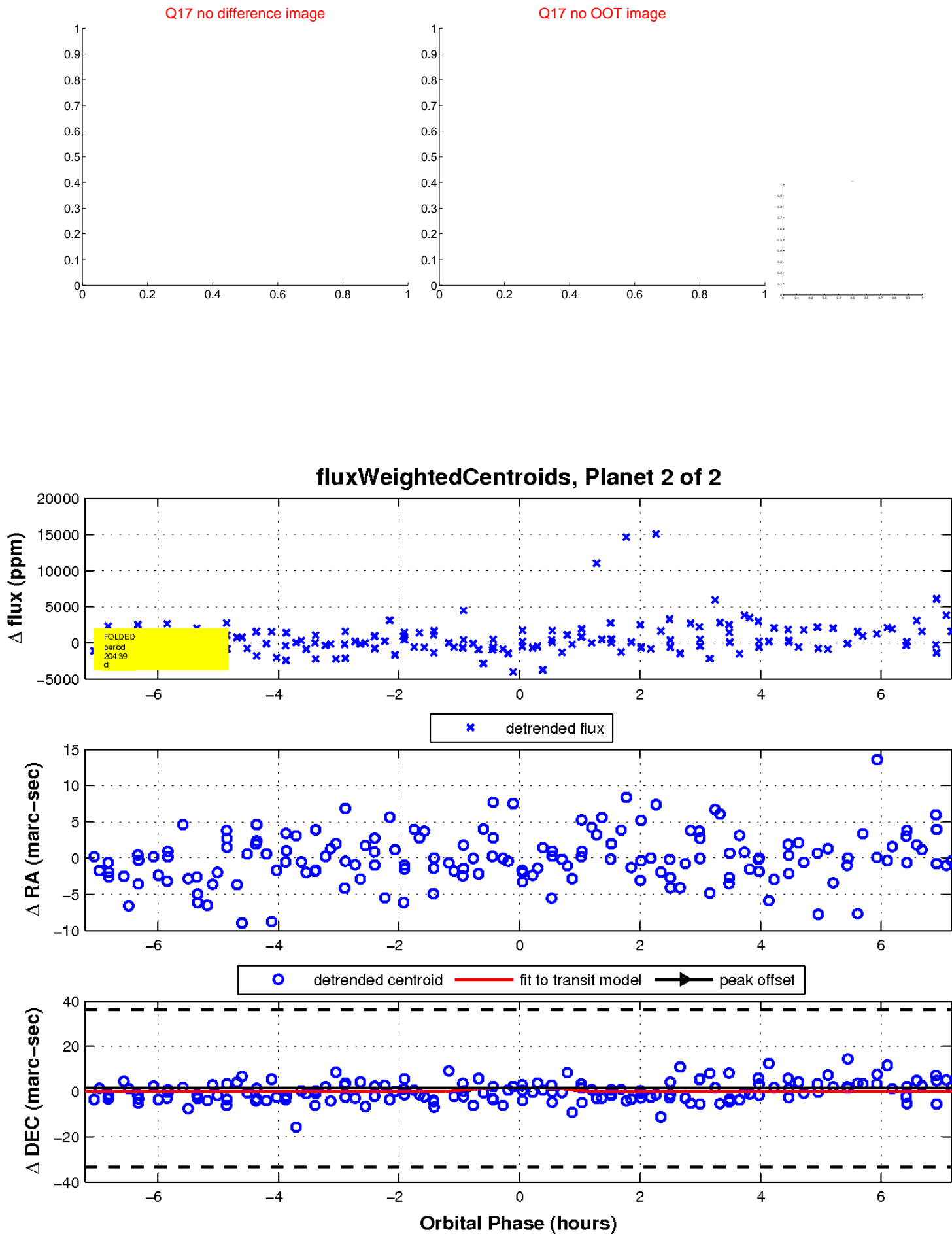
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

