

KIC 005561316

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})
005561316-01	OBS	No	0.683116	132.026529	101.9	2.214	10.2	8.1	2.02	7504	2.36	35713.37
005561316-02	OBS	No	0.683084	131.720933	92.0	4.138	10.2	9.2	2.02	7504	2.27	35715.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005561316-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005561316-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

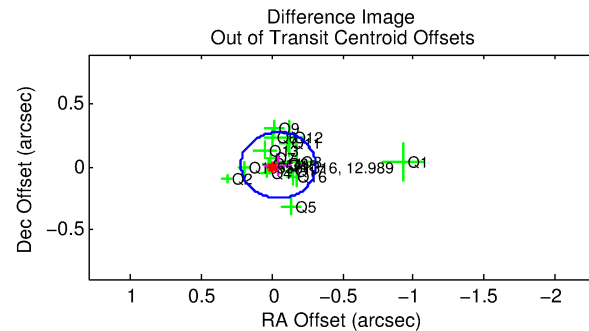
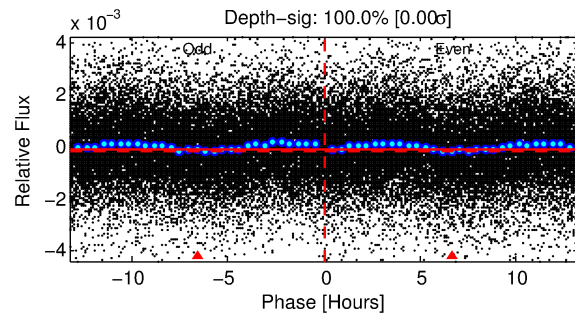
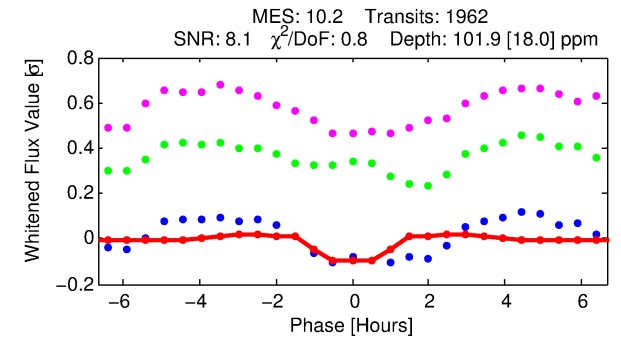
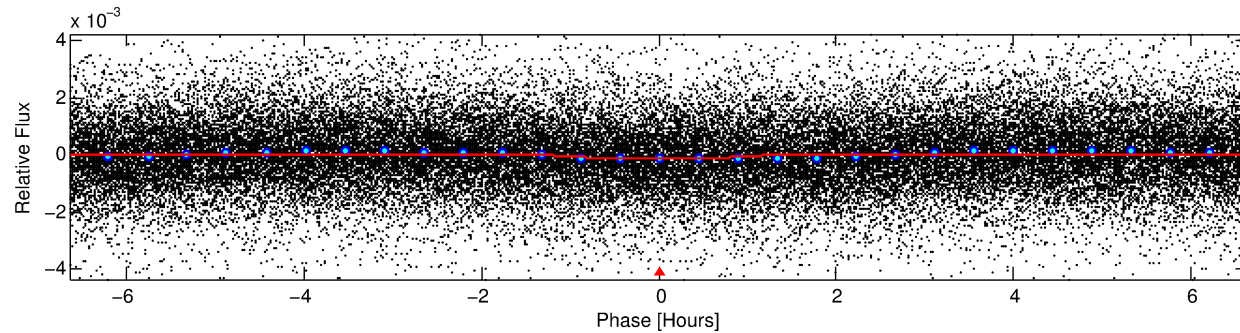
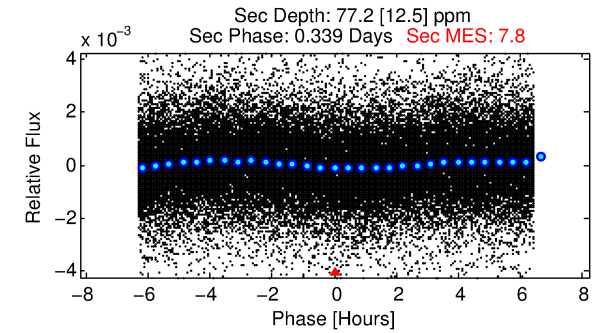
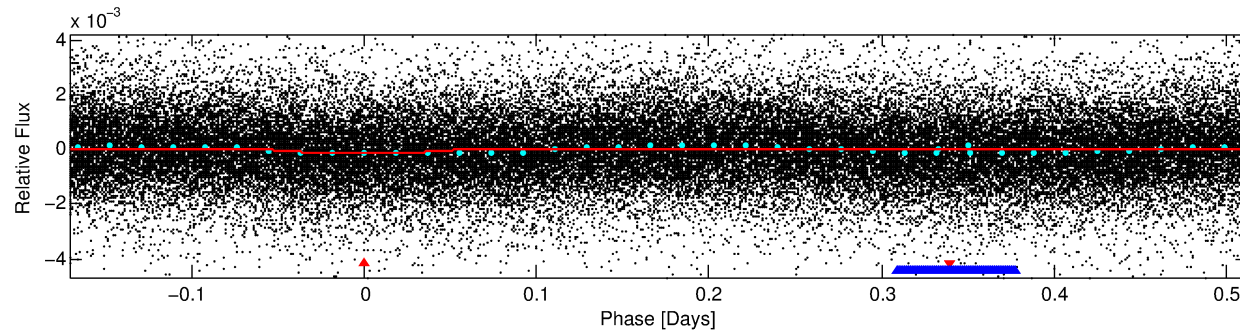
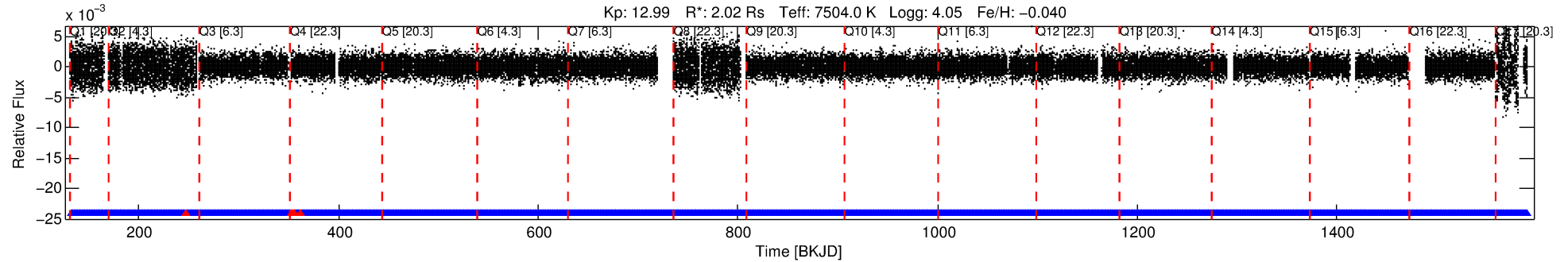
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005561316-01

No Significant Match Found

DV One-Page Summary

KIC: 5561316 Candidate: 1 of 2 Period: 0.683 d



DV Fit Results:

Period = 0.68312 [0.00001] d
Epoch = 132.0265 [0.0032] BKJD
Rp/R* = 0.0107 [0.0062]
a/R* = 1.43 [2.80]
b = 0.90 [0.81]
Seff = 35713.37 [12438.85]
Teq = 3505 [305] K
Rp = 2.36 [1.50] Re
a = 0.0180 [0.0038] AU
Ag = 2.48 [3.00] [0.49σ]
Teffp = 6798 [2016] K [1.61σ]

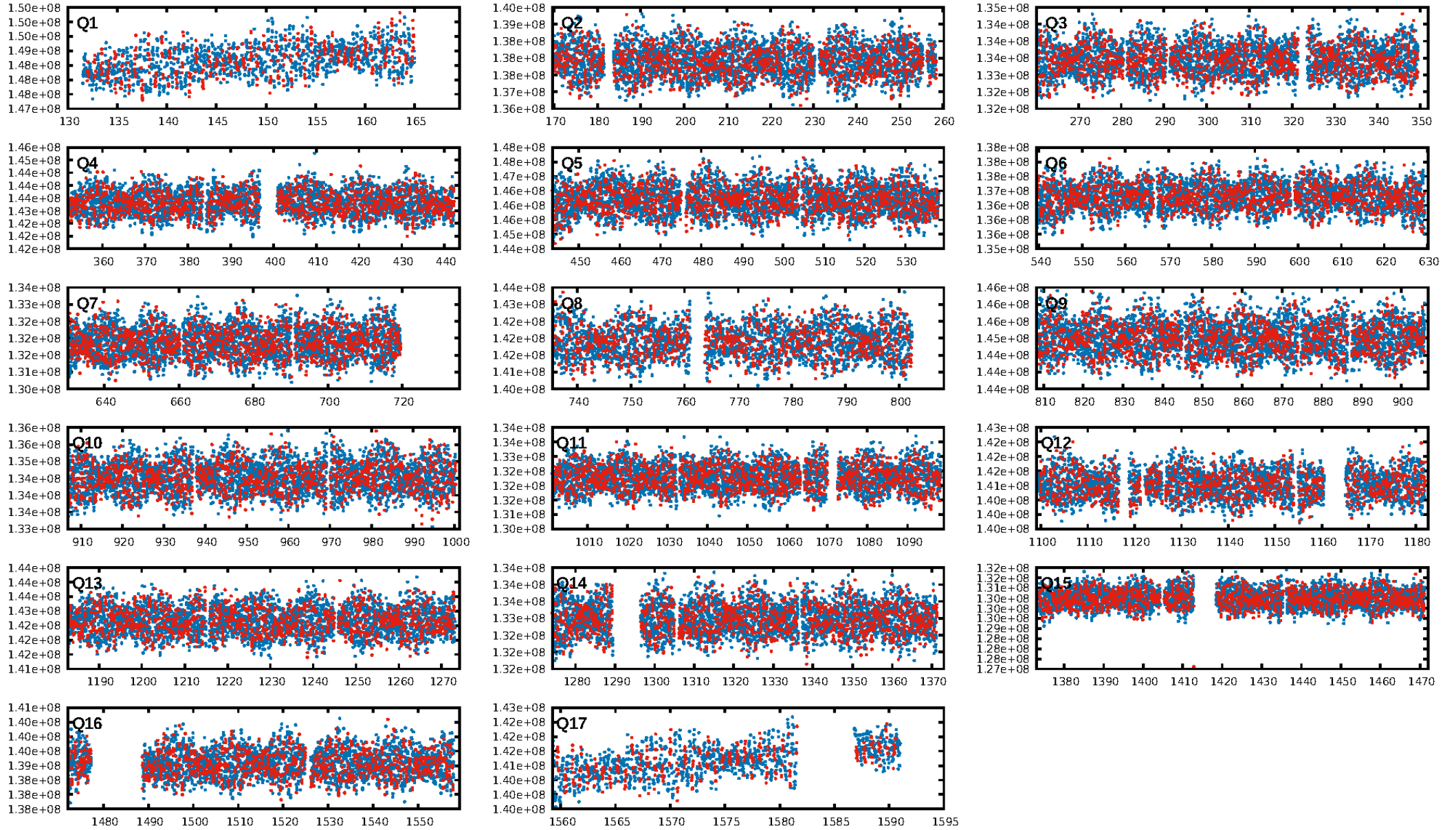
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00α]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1869/1874]
GhostDiagnostic-chr: 1.009
Centroid-sig: 36.4%
Centroid-so: 0.311 arcsec [1.23σ]
OotOffset-rm: 0.046 arcsec [0.52σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.107 arcsec [1.24σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

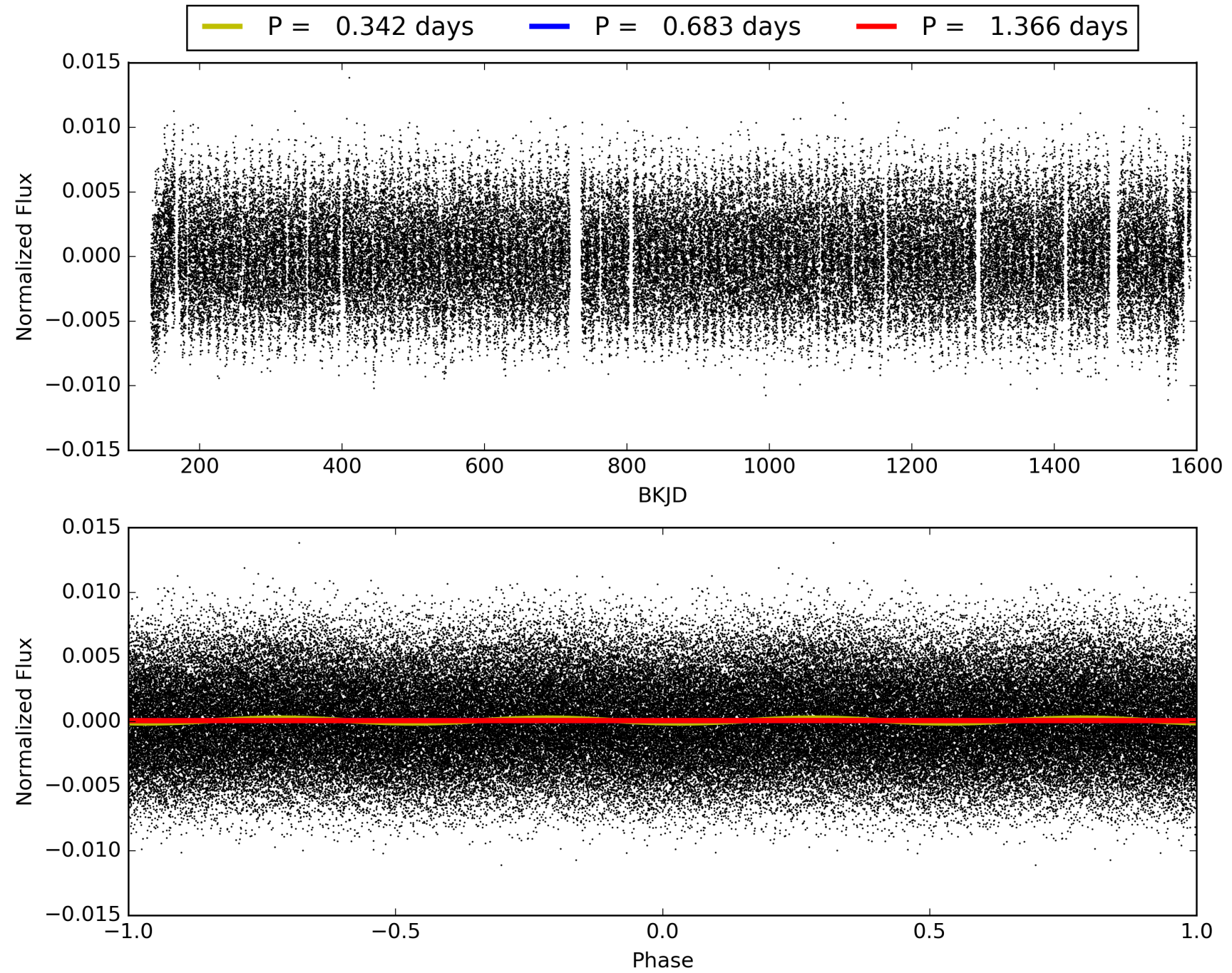
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:03:00 Z

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

TCE 005561316-01, PDC Light Curves

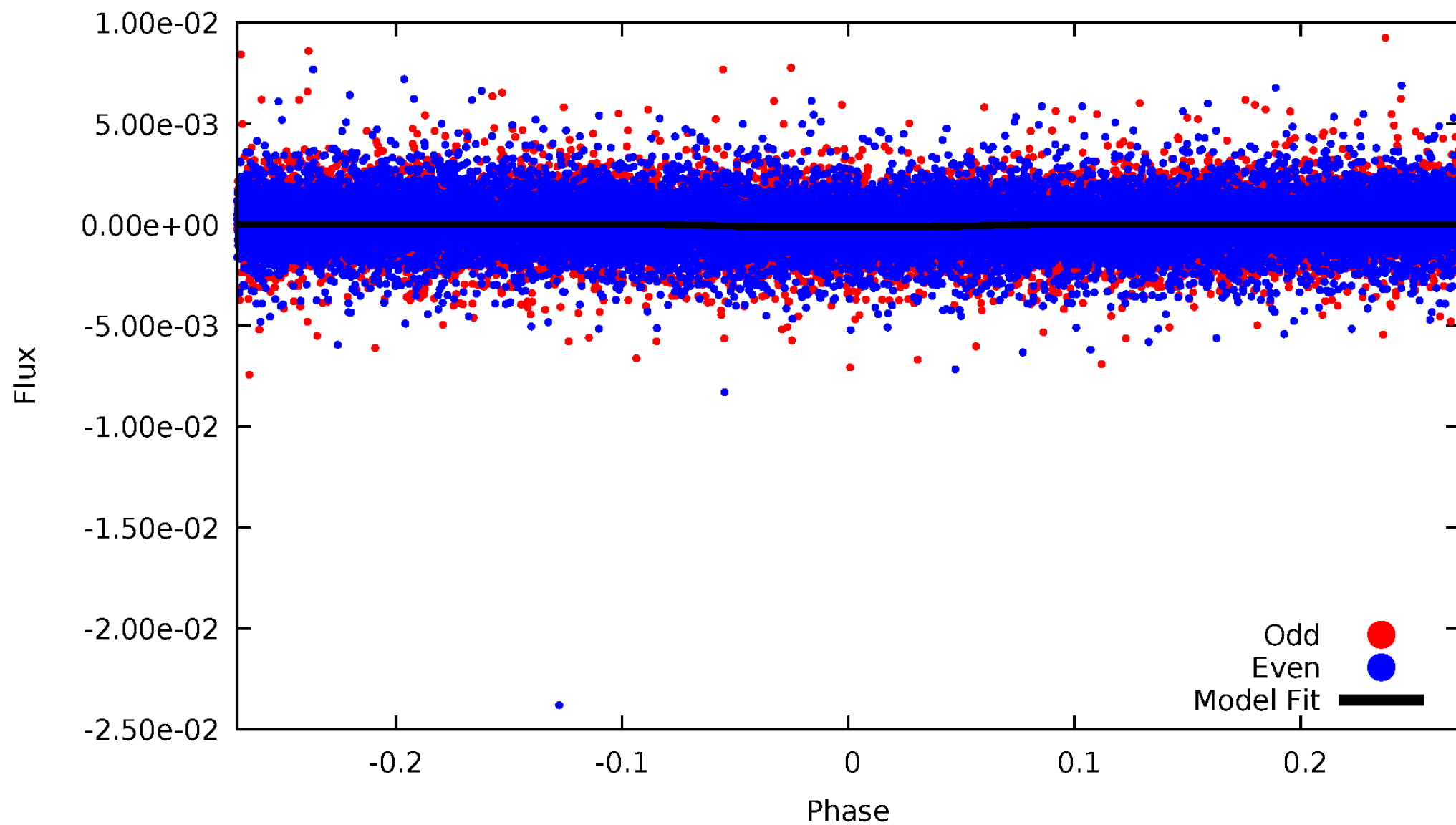


TCE 005561316-01



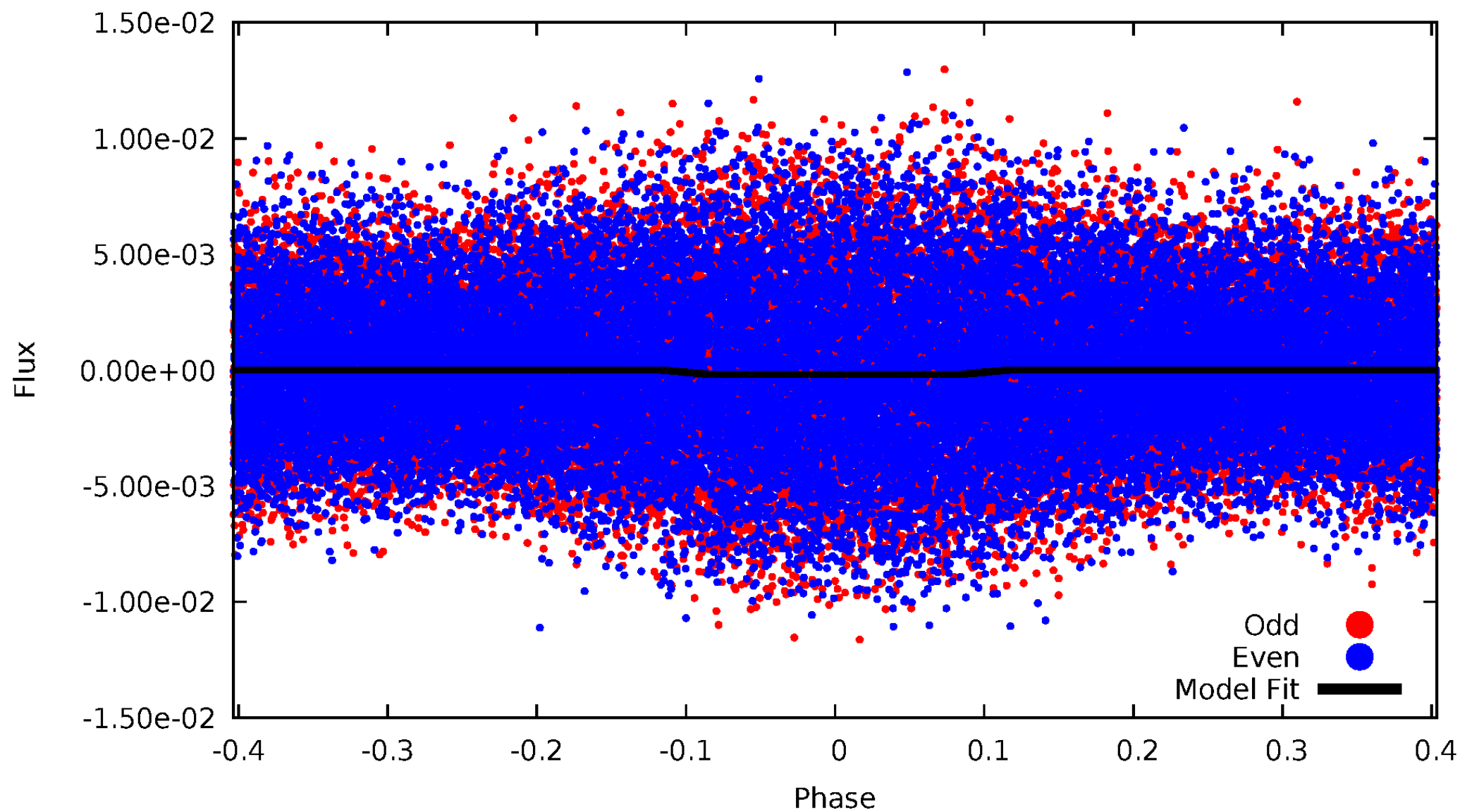
DV Odd/Even

TCE 005561316-01

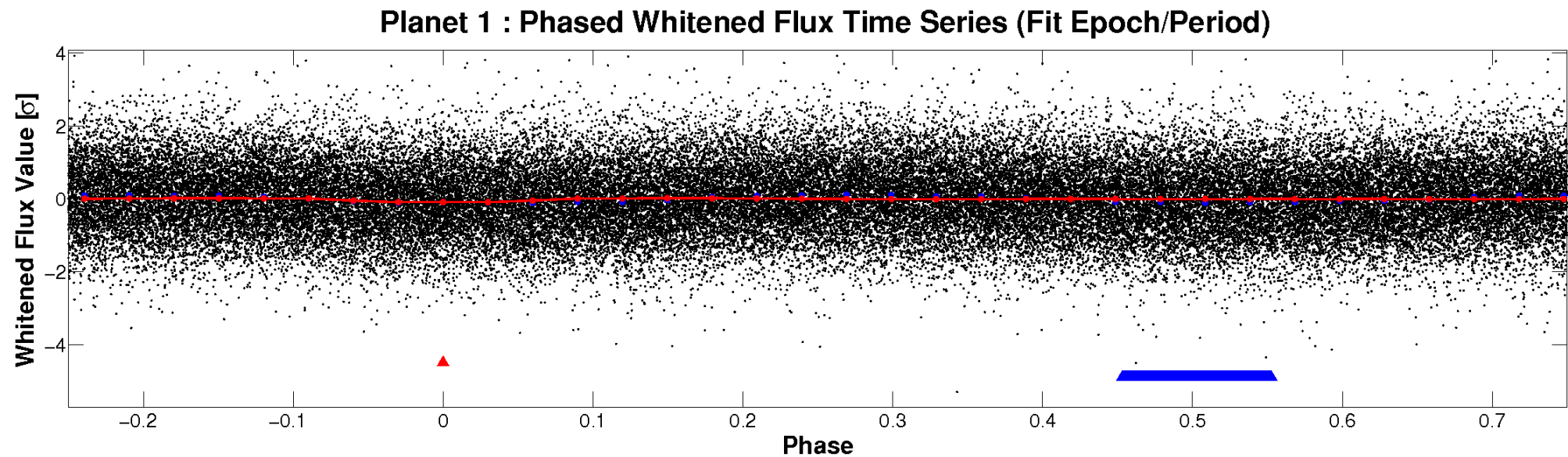
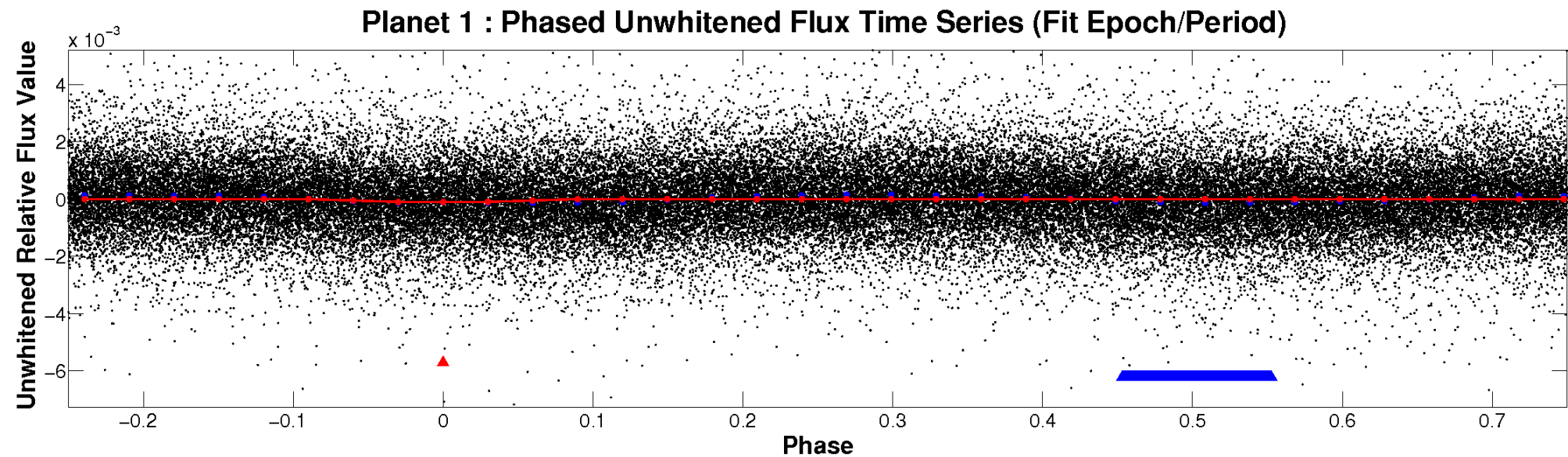


ALT Odd/Even

TCE 005561316-01

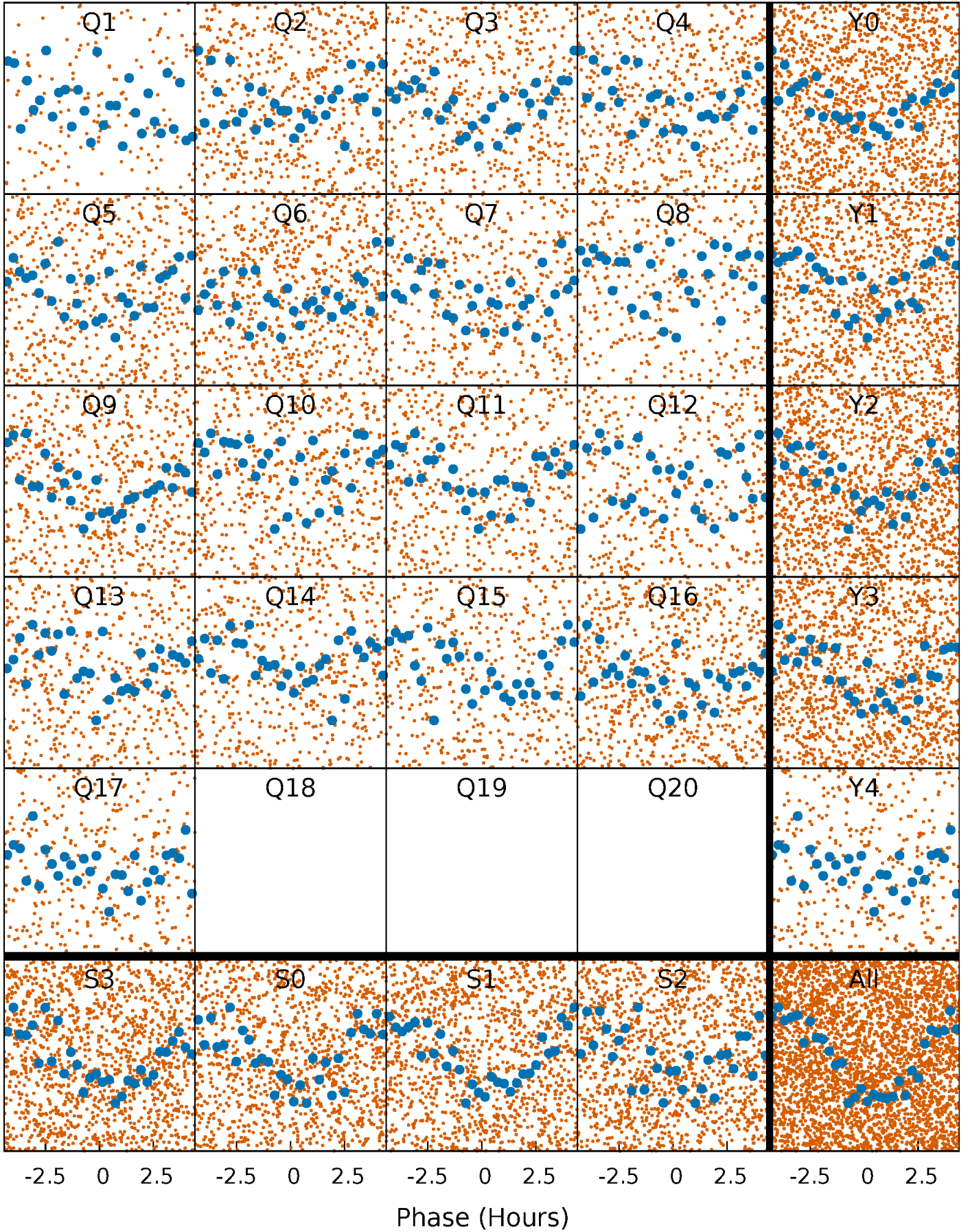


Non-Whitened Vs. Whitened Light Curve



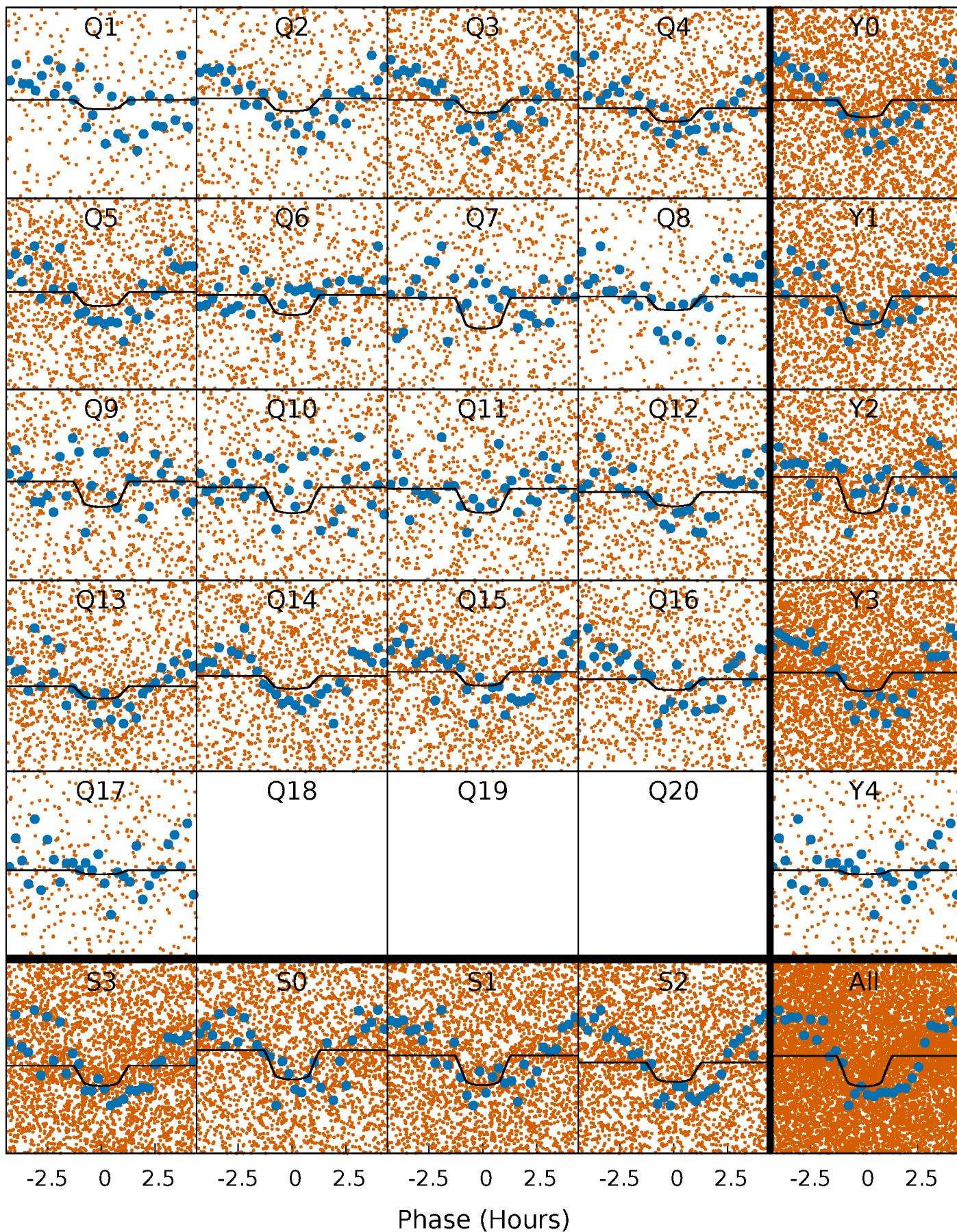
PDC Quarter-Phased Transit Curves

TCE 005561316-01 P= 0.683116 Days $T_0=132.026529$ (BKJD)



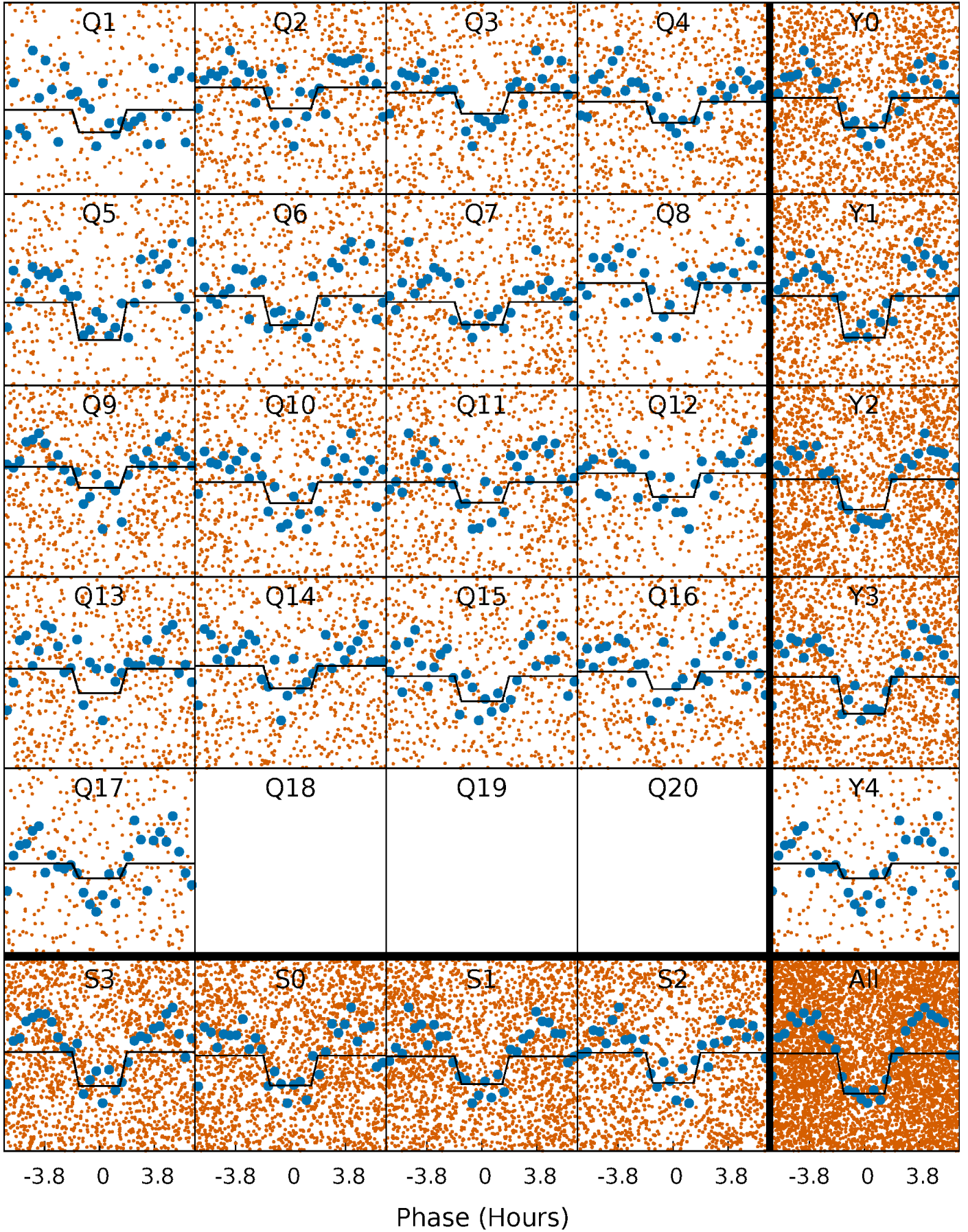
DV Quarter-Phased Transit Curves

TCE 005561316-01 P= 0.683116 Days $T_0=132.026529$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

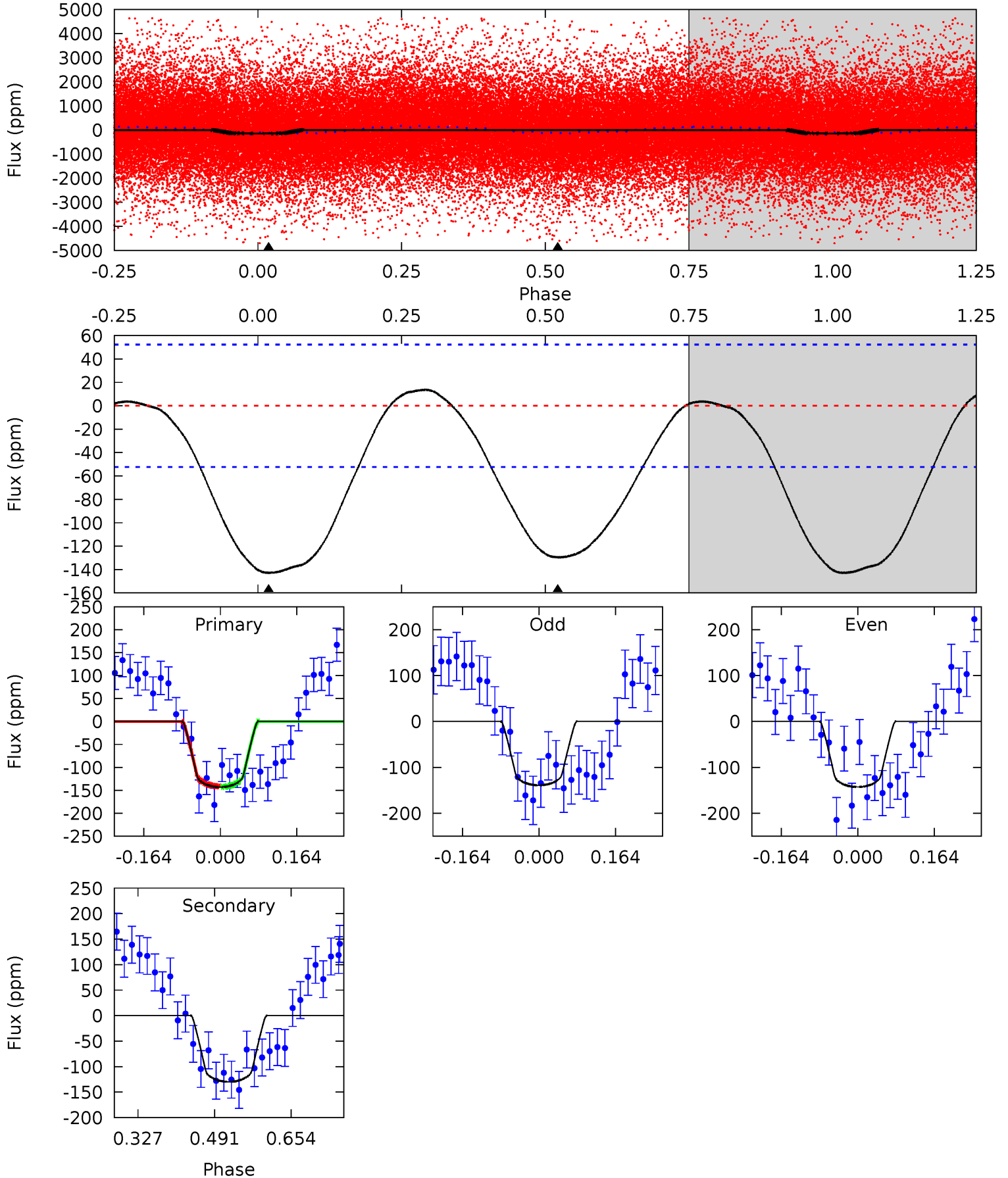
TCE 005561316-01 P= 0.683137 Days $T_0=132.024463$ (BKJD)



DV Model-Shift Uniqueness Test

005561316-01, P = 0.683116 Days, E = 131.343413 Days

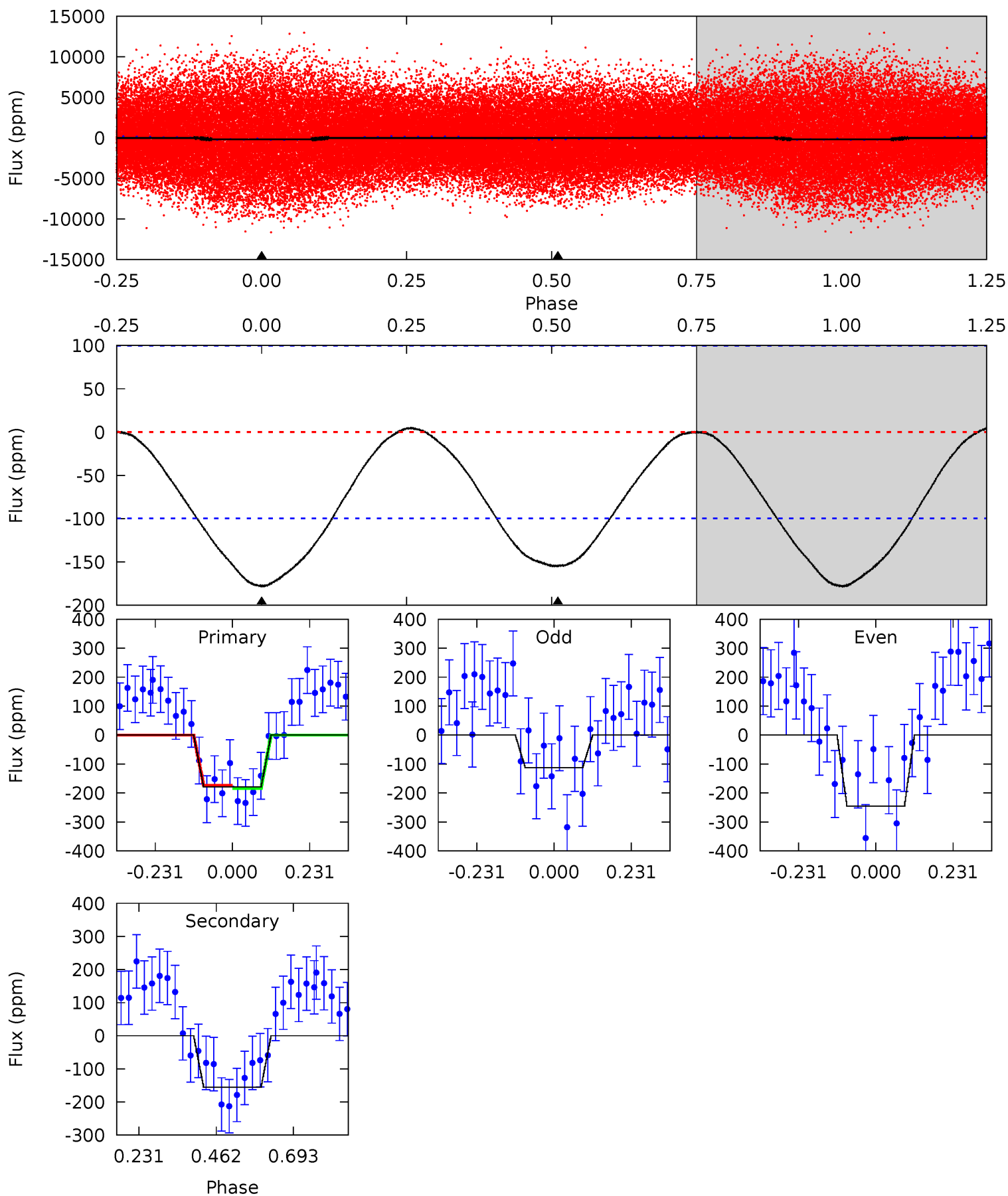
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	11.1	0	0	4.46	1.39	1.14	12.2	12.2	11.1	11.1	0.16	1.20	0.09	0.06



Alt Model-Shift Uniqueness Test

005561316-01, P = 0.683137 Days, E = 131.341326 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.87	6.83	0	0	4.39	1.20	0.11	7.87	7.87	6.83	6.83	2.56	0.89	0.03	0.19



Stellar Parameters For KIC 005561316

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7504^{+209}_{-314}	$4.050^{+0.165}_{-0.165}$	$-0.040^{+0.200}_{-0.350}$	$2.019^{+0.517}_{-0.517}$	$1.665^{+0.200}_{-0.300}$	$0.285^{+0.265}_{-0.139}$
	+3%/-4%	+4%/-4%	+500%/-875%	+26%/-26%	+12%/-18%	+93%/-49%
Source	KIC0	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 005561316-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-130 ± 12	$2.36^{+1.41}_{-1.24}$	4888^{+348}_{-350}	7522^{+5111}_{-1751}	$4.073^{+14.368}_{-2.433}$
Alt.	-155 ± 23	$2.96^{+1.44}_{-1.48}$	4859^{+382}_{-339}	6919^{+4062}_{-1459}	$3.106^{+8.691}_{-1.707}$

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 $A_{obs} \gg 1.0$

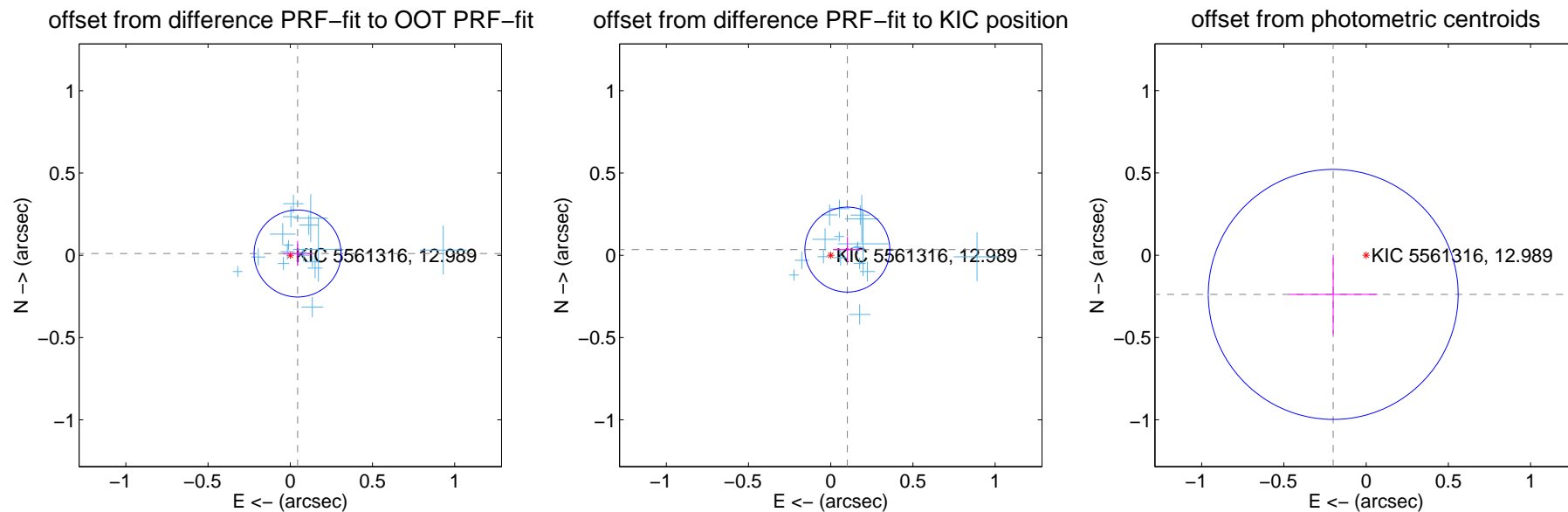
DV Centroid Data

Supplemental centroid analysis for 005561316-01. Kepler magnitude: 12.99. Transit SNR 8.06

There are 17 quarters with good PRF difference image offsets

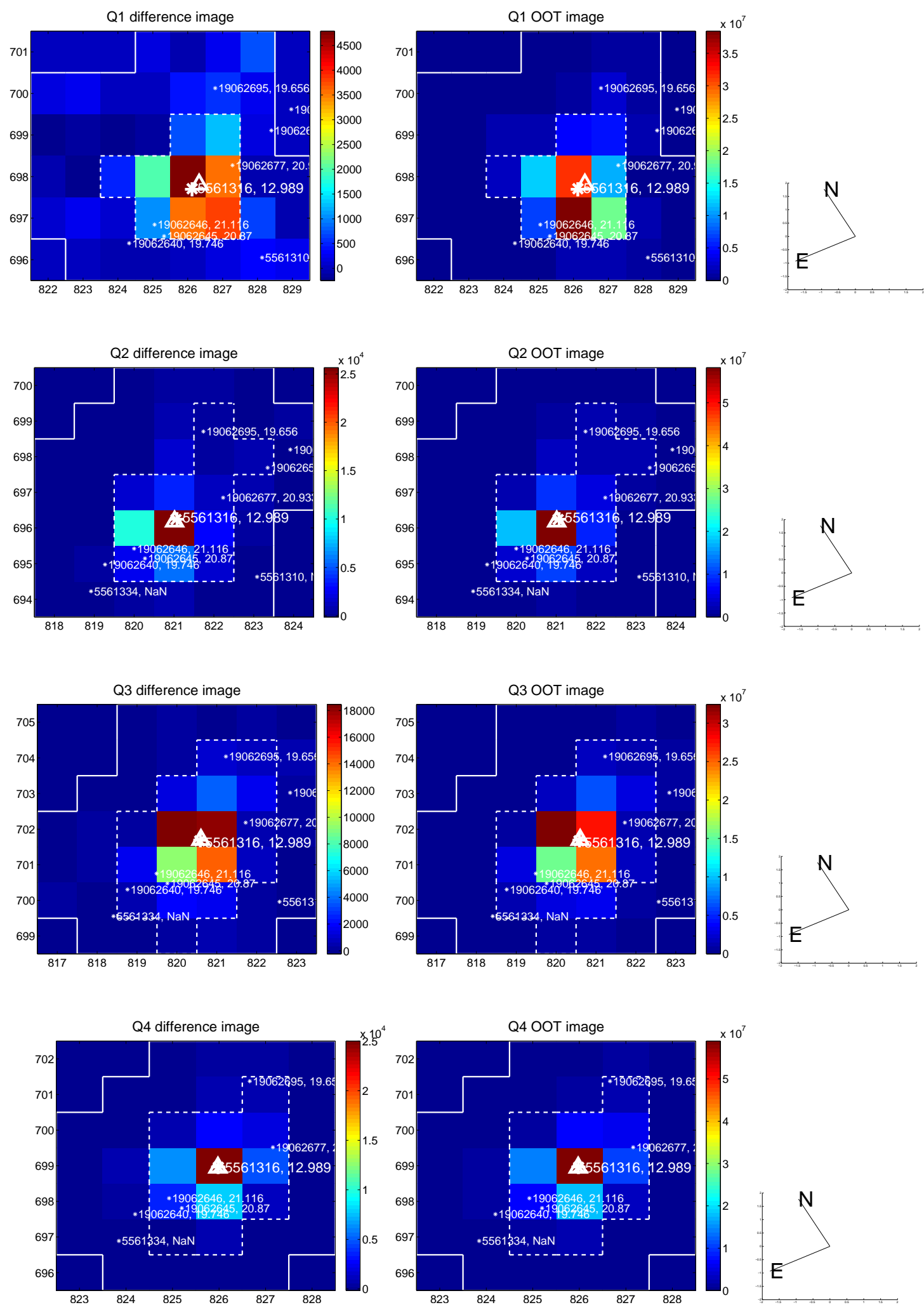
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.046 ± 0.088	0.52	-0.044 ± 0.089	0.011 ± 0.076
PRF-fit source offset from KIC position	0.107 ± 0.086	1.24	-0.101 ± 0.087	0.035 ± 0.077
photometric centroid source offset	0.31 ± 0.25	1.23	0.20 ± 0.27	-0.24 ± 0.24

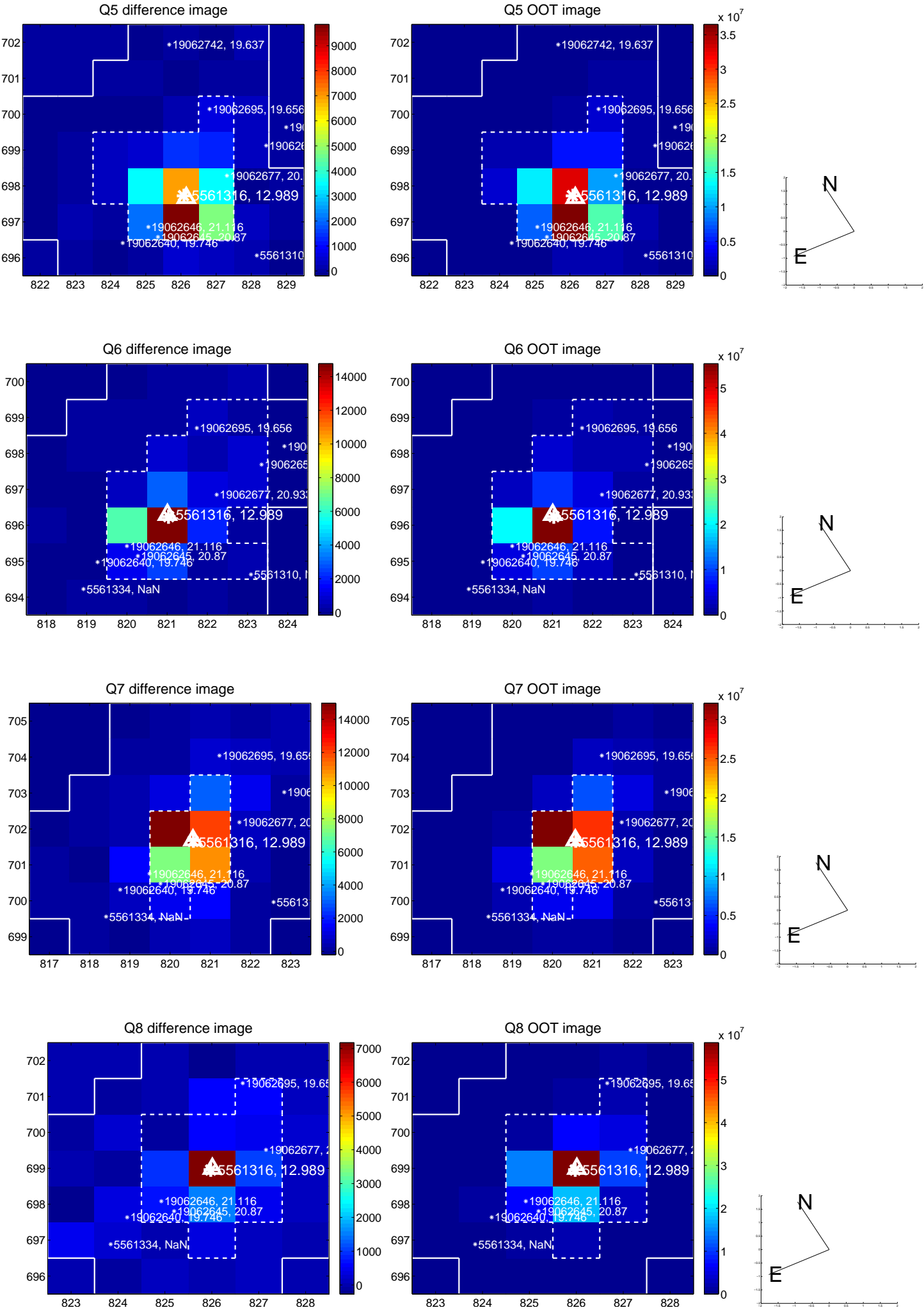


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

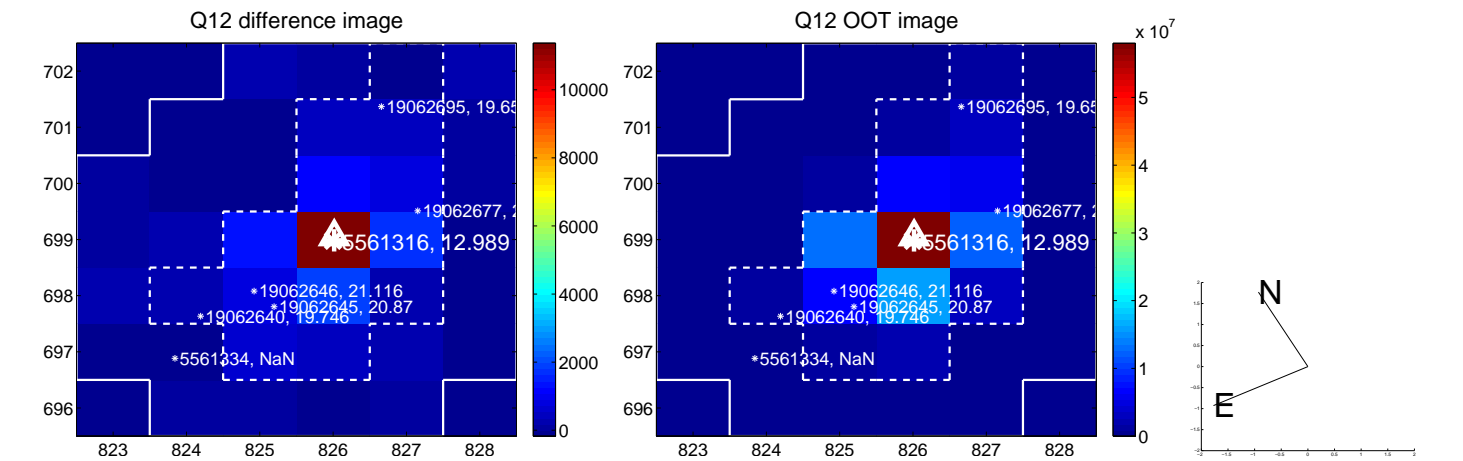
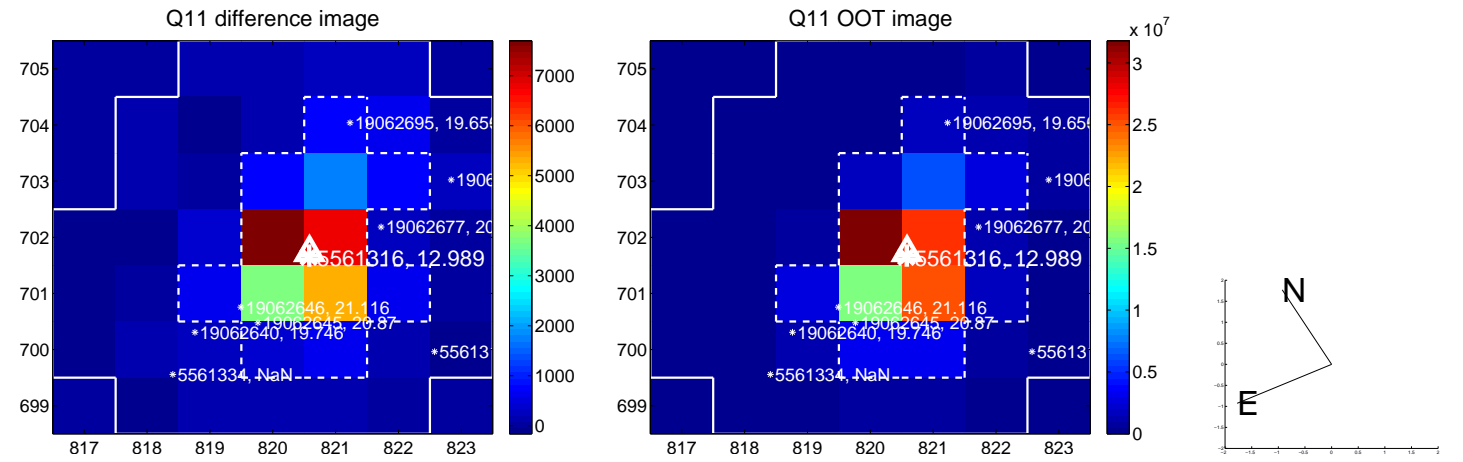
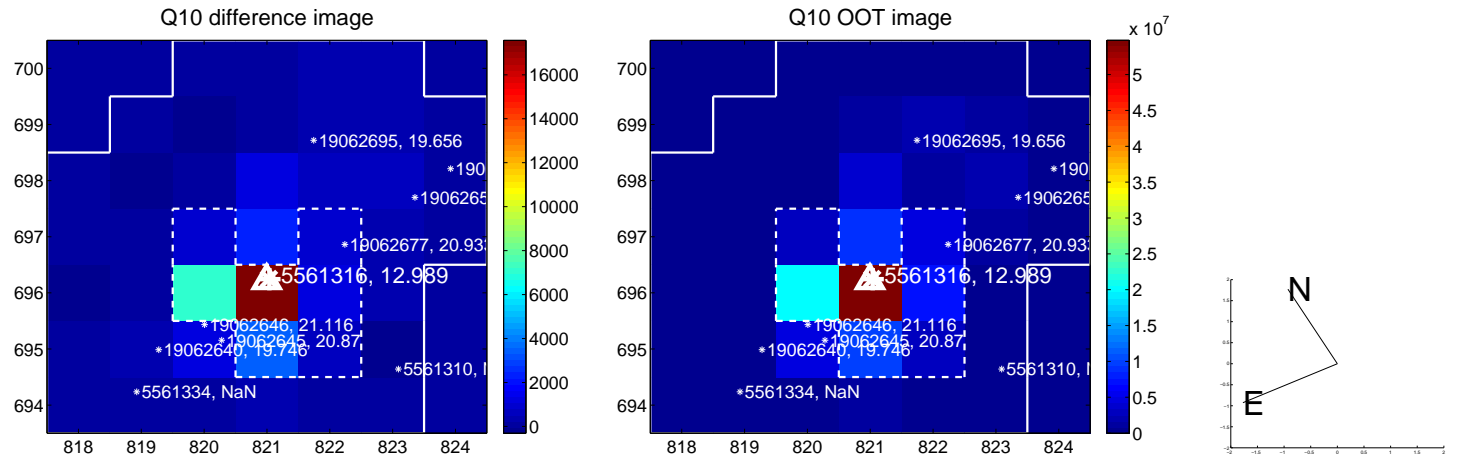
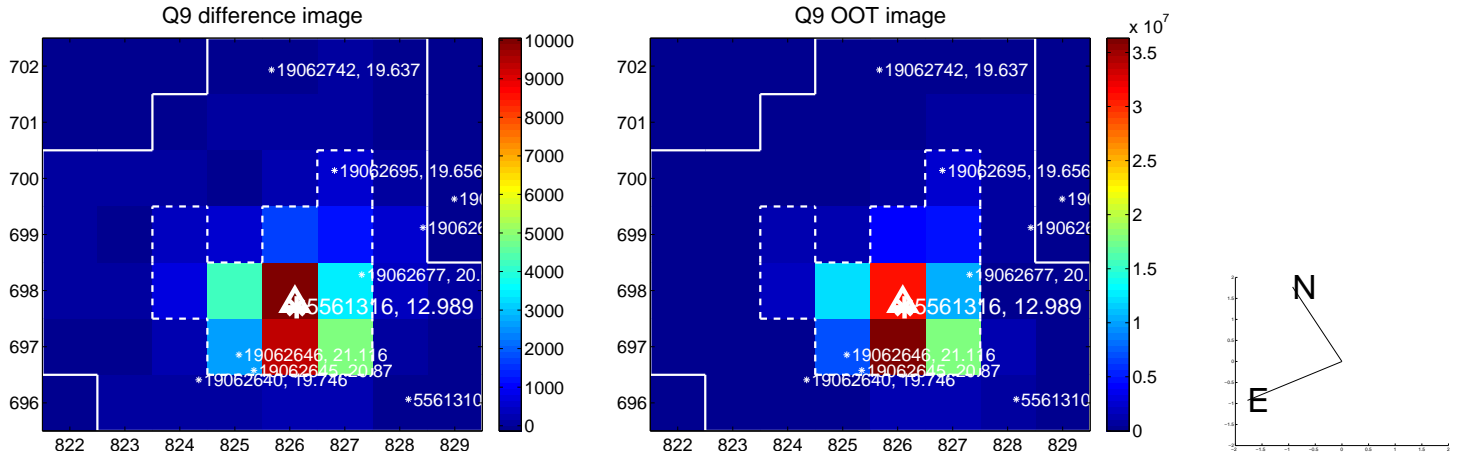
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



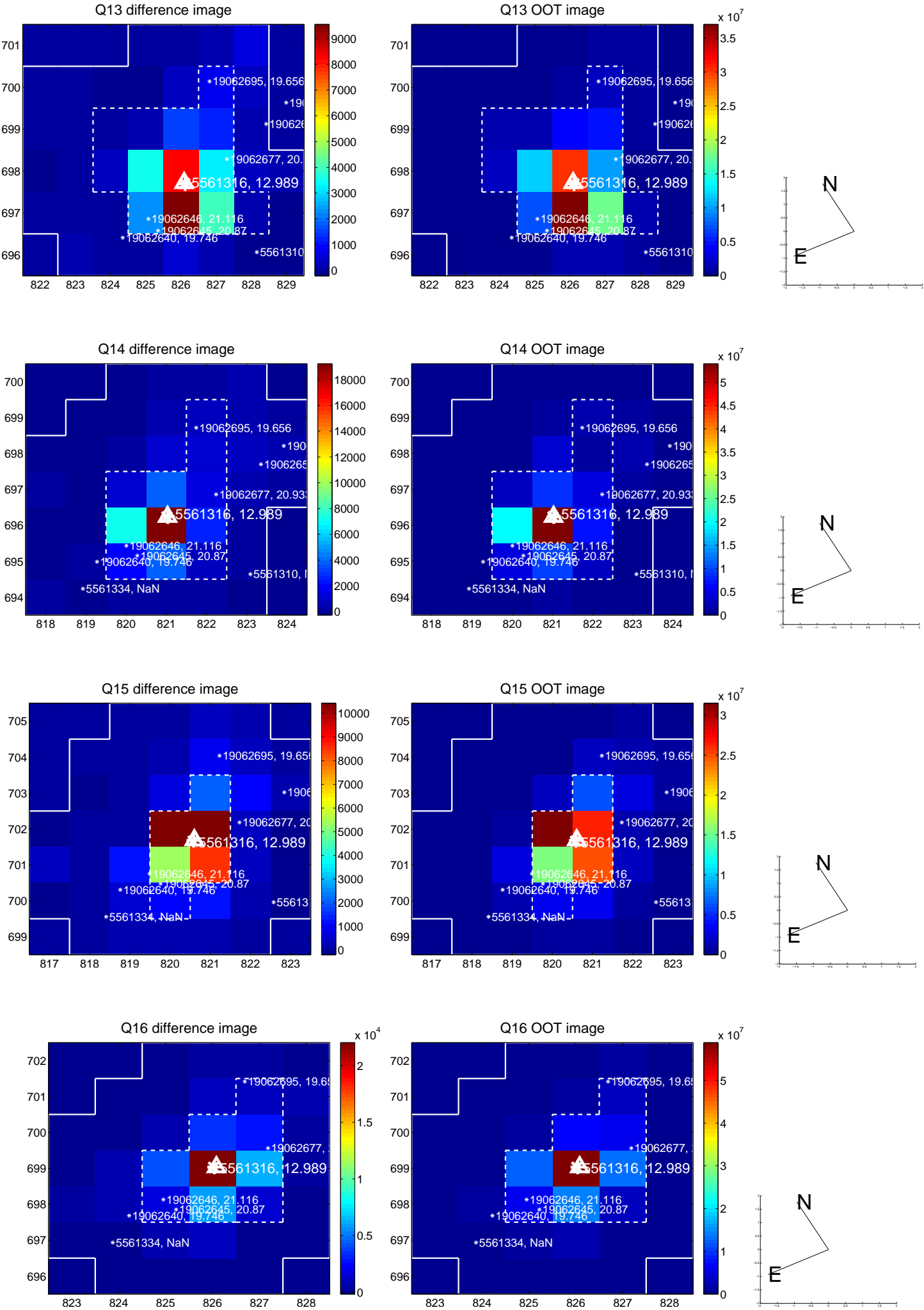
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



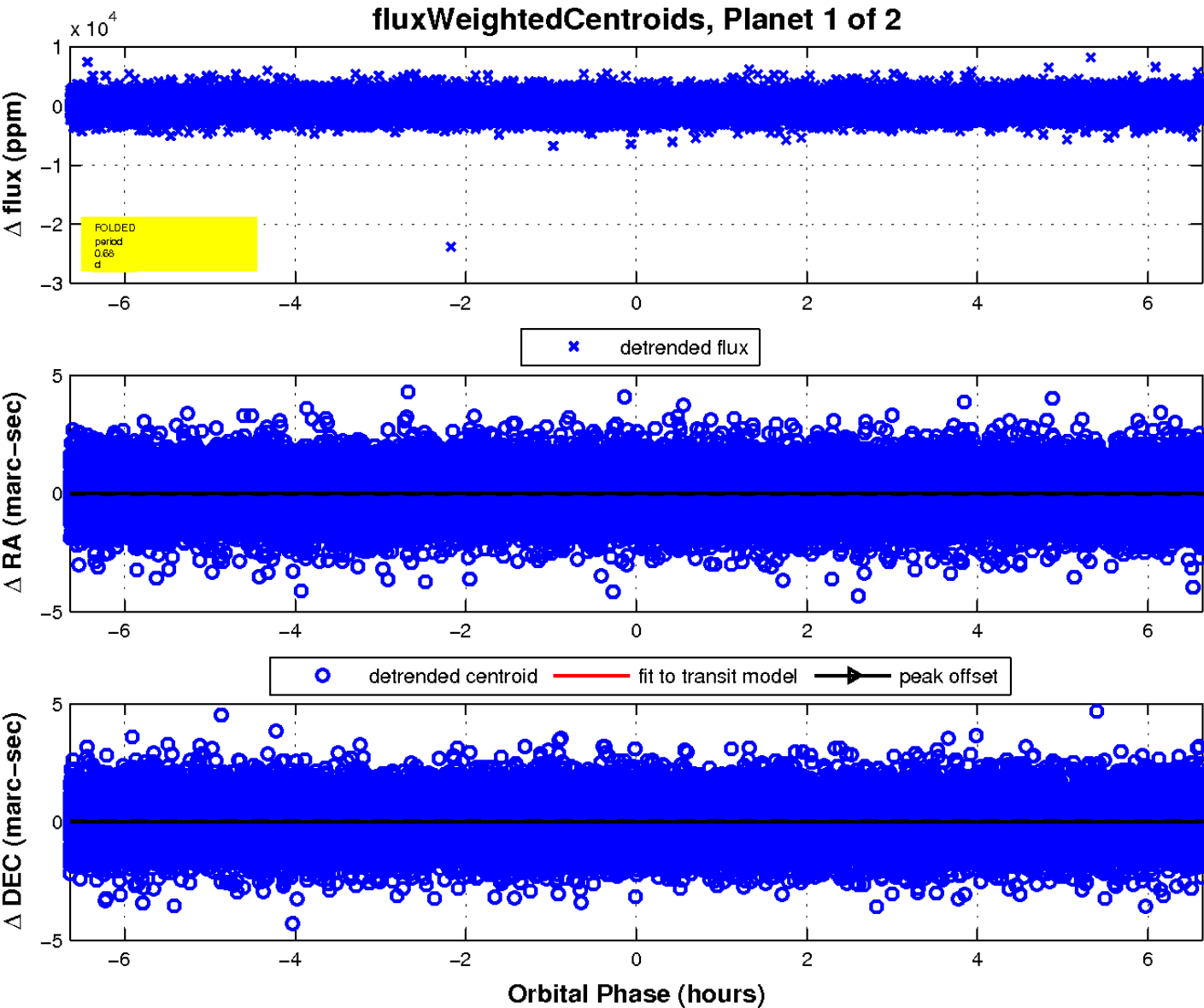
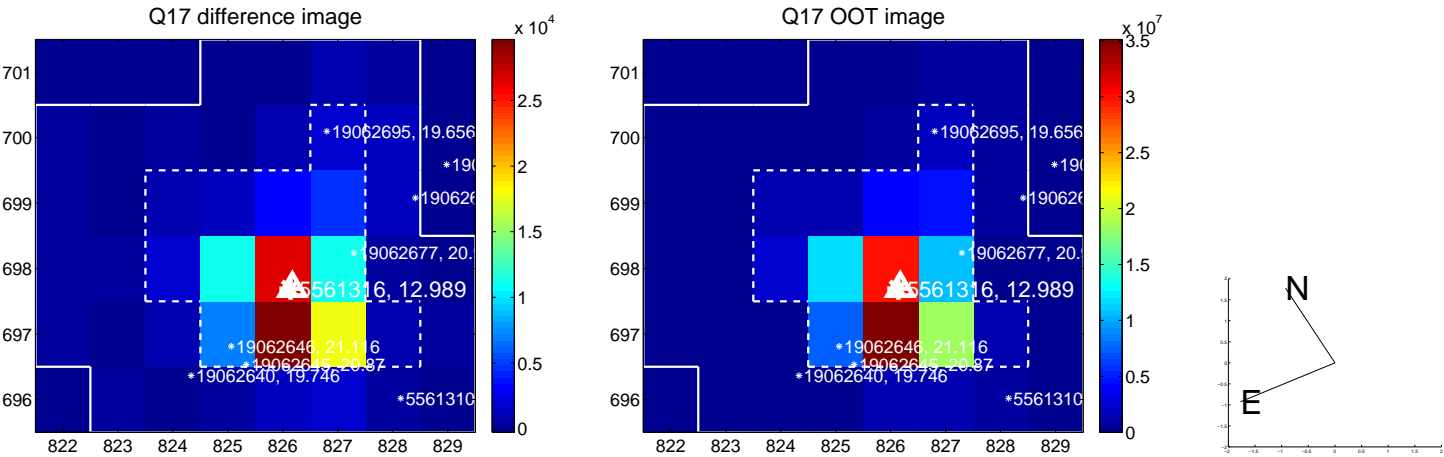
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

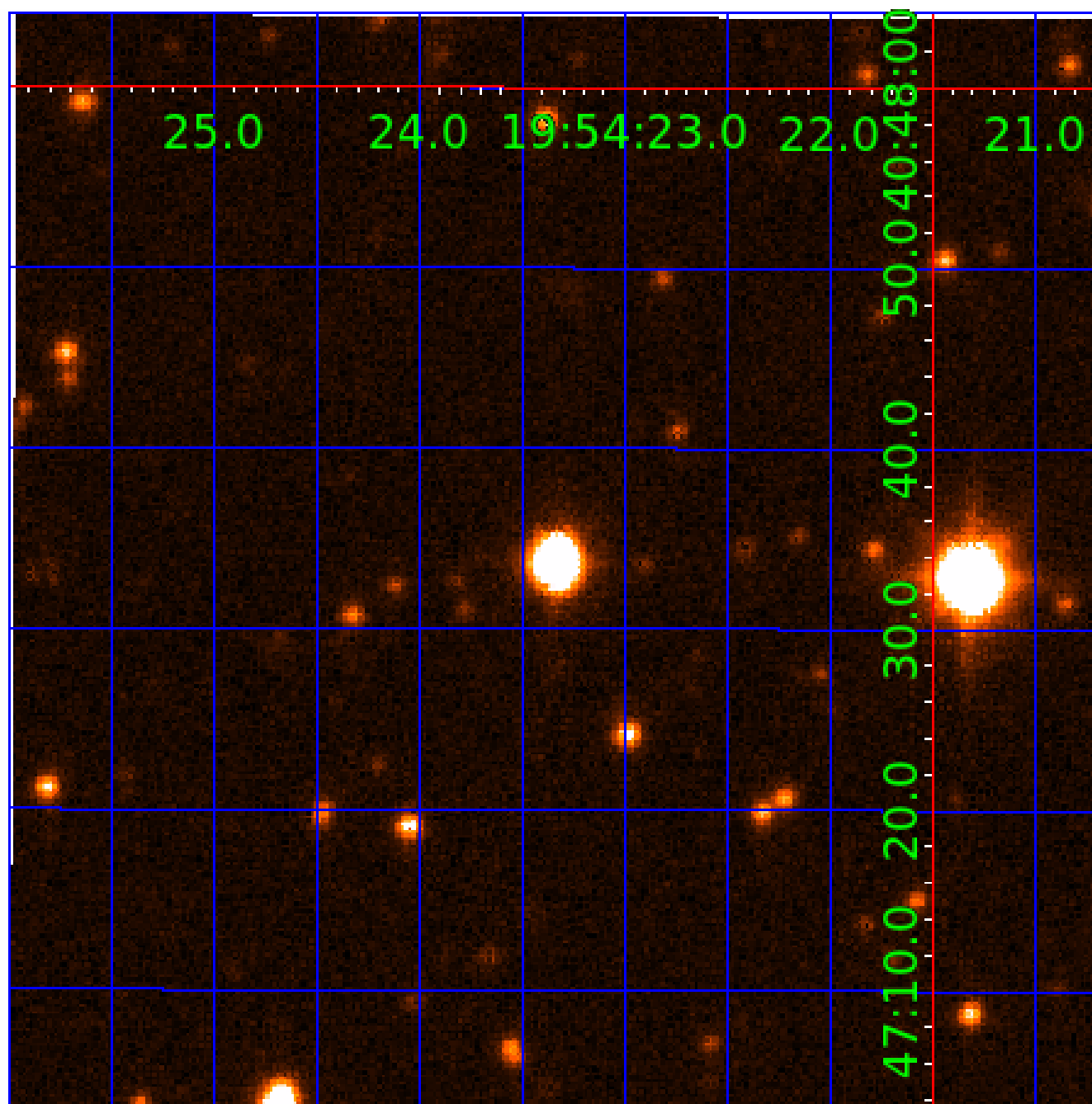


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005561316

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})
005561316-01	OBS	No	0.683116	132.026529	101.9	2.214	10.2	8.1	2.02	7504	2.36	35713.37
005561316-02	OBS	No	0.683084	131.720933	92.0	4.138	10.2	9.2	2.02	7504	2.27	35715.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005561316-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
005561316-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

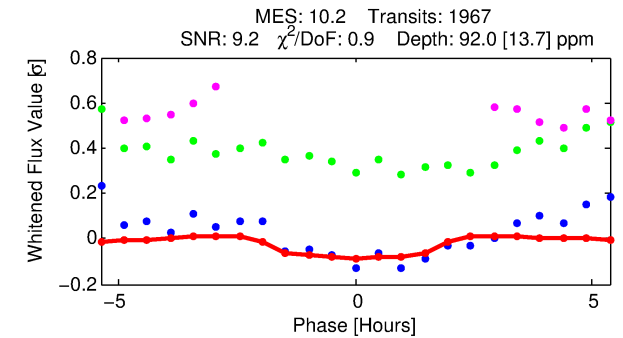
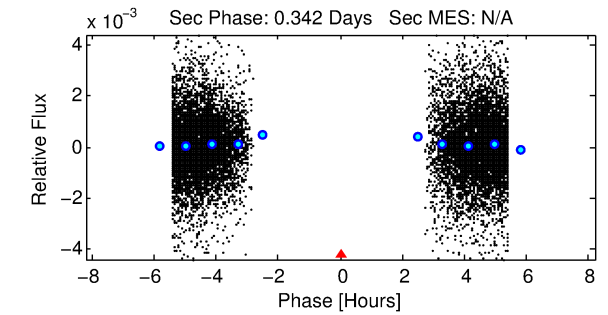
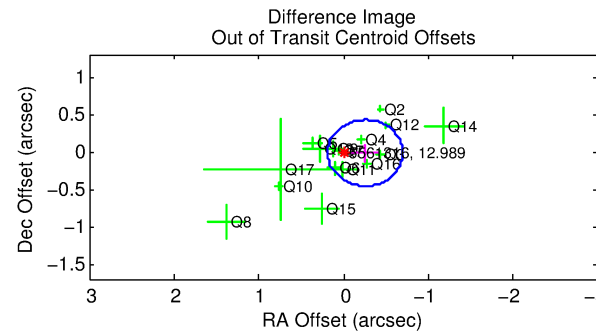
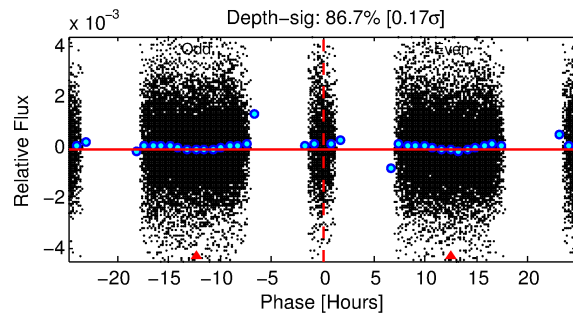
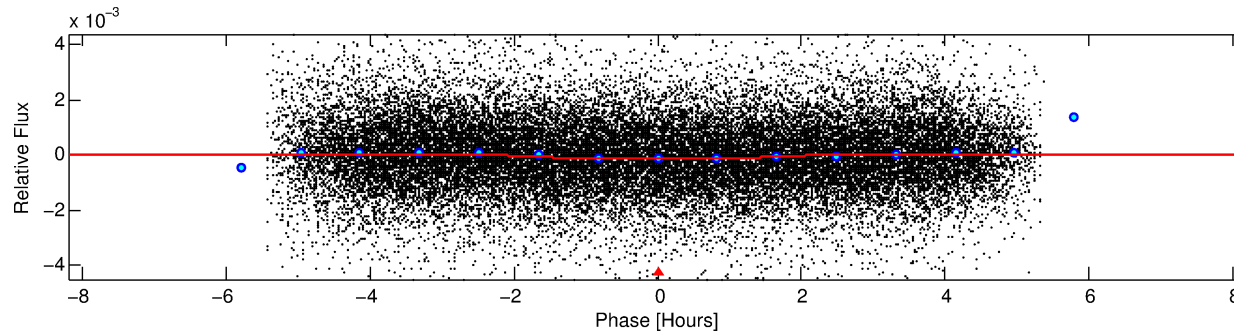
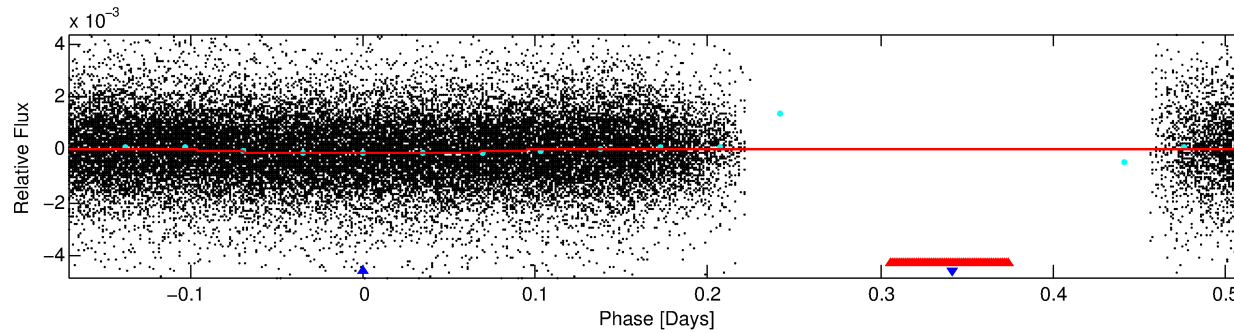
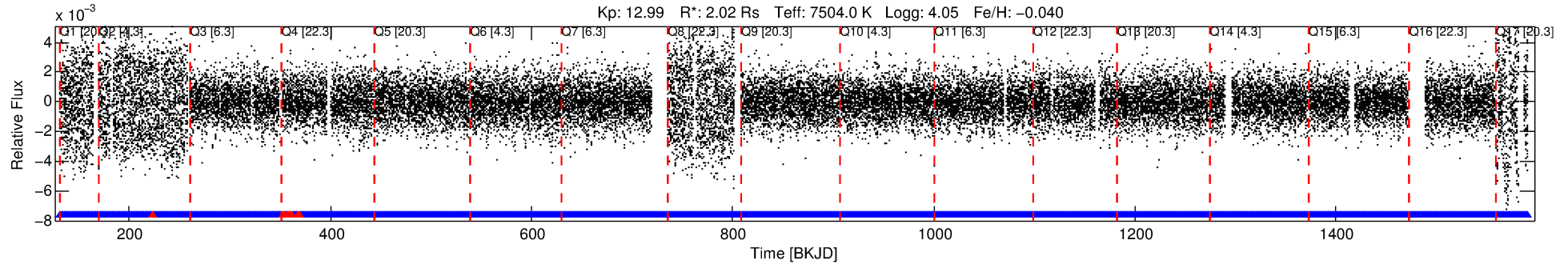
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005561316-02

No Significant Match Found

DV One-Page Summary

KIC: 5561316 Candidate: 2 of 2 Period: 0.683 d



DV Fit Results:

Period = 0.68308 [0.00001] d
Epoch = 131.7209 [0.0045] BKJD
Rp/R* = 0.0103 [0.0031]
a/R* = 1.09 [0.35]
b = 0.91 [0.35]
Seff = 35715.59 [12439.62]
Teq = 3505 [305] K
Rp = 2.26 [0.90] Re
a = 0.0180 [0.0038] AU

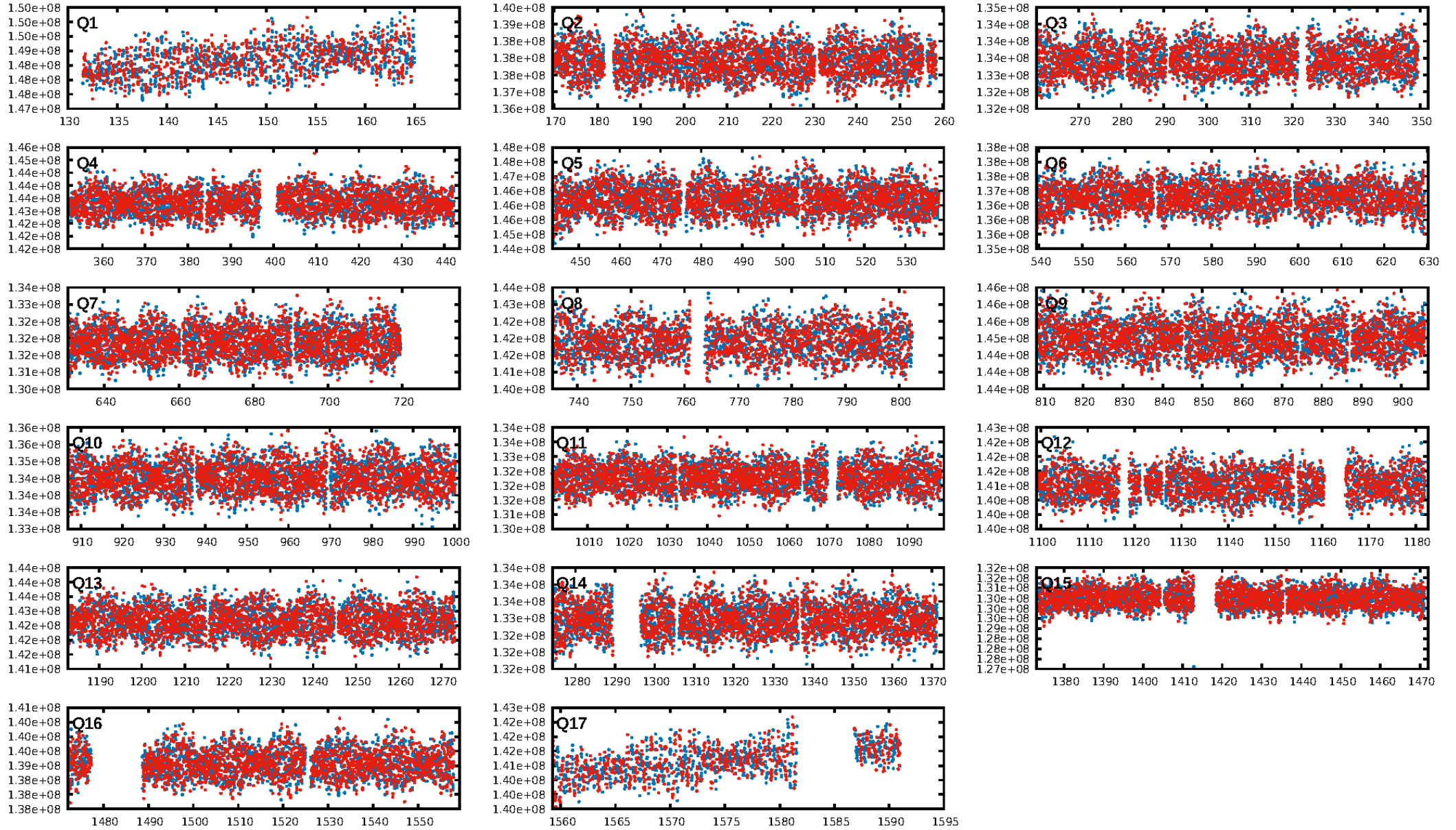
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [1868/1879]
GhostDiagnostic-chr: 1.544
Centroid-sig: 41.7%
Centroid-so: 0.071 arcsec [0.32 σ]
OotOffset-rm: 0.255 arcsec [1.73 σ]
KicOffset-rm: 0.307 arcsec [1.76 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 0.00 [0/17]

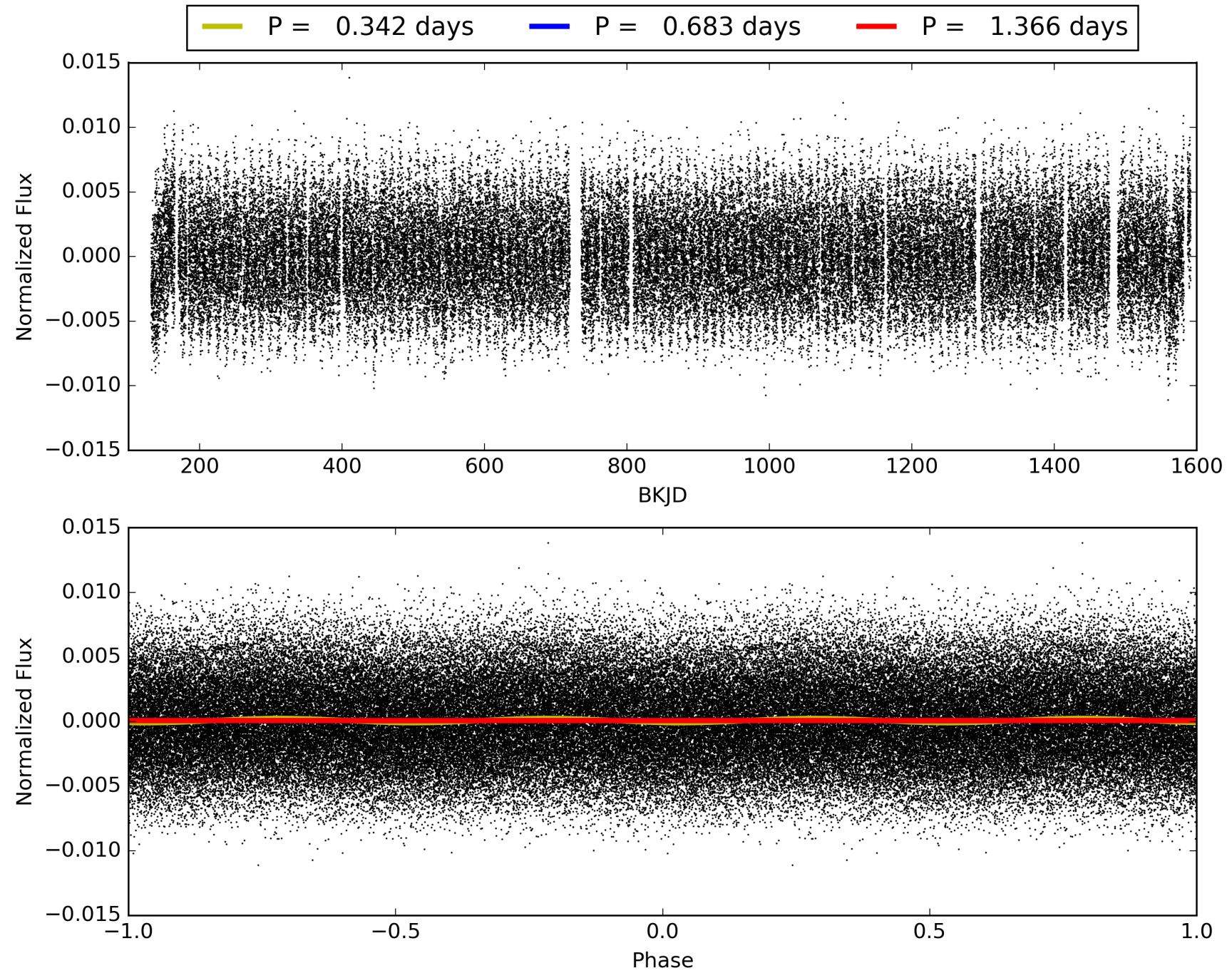
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:03:13 Z

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

TCE 005561316-02, PDC Light Curves

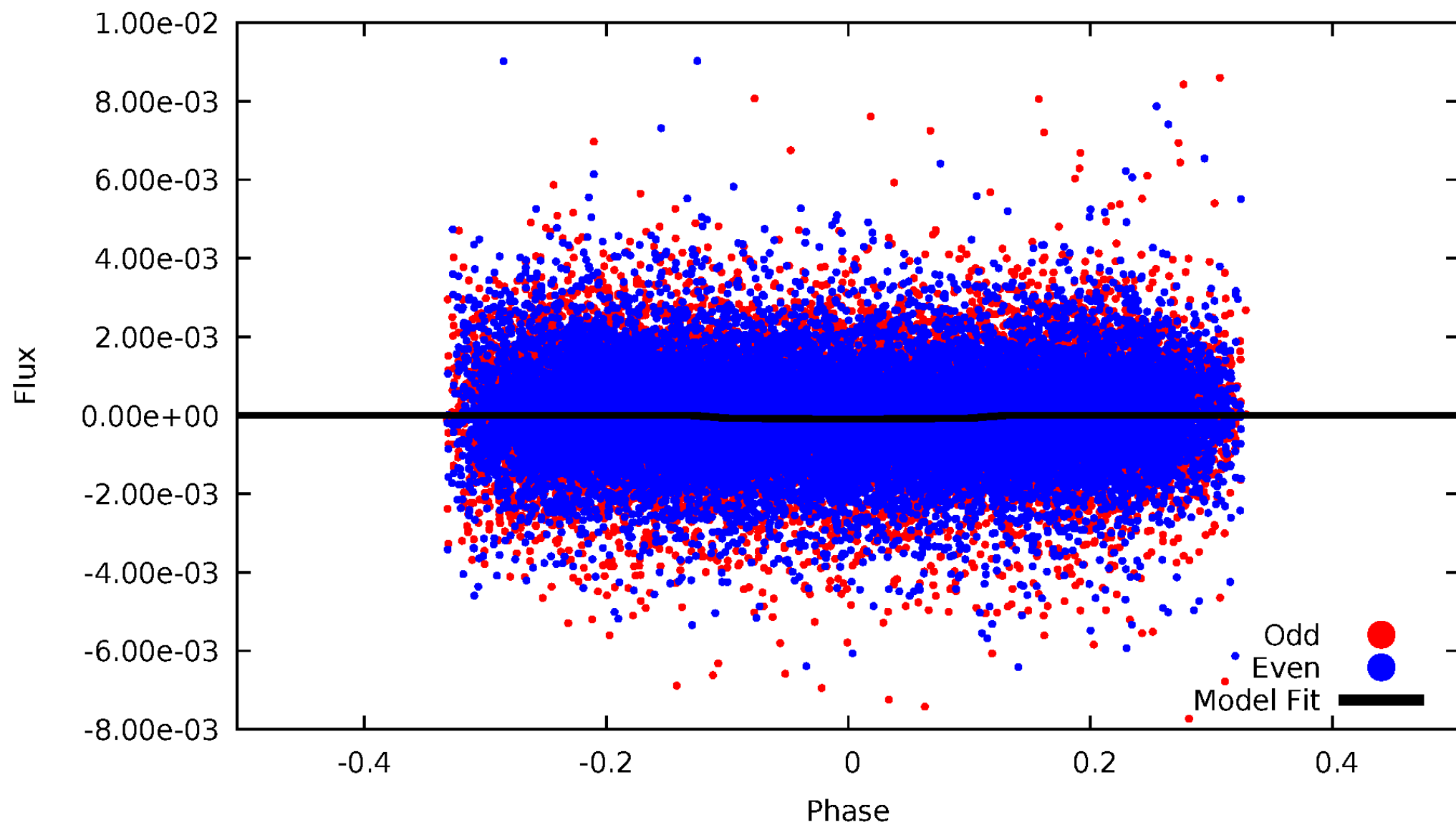


TCE 005561316-02



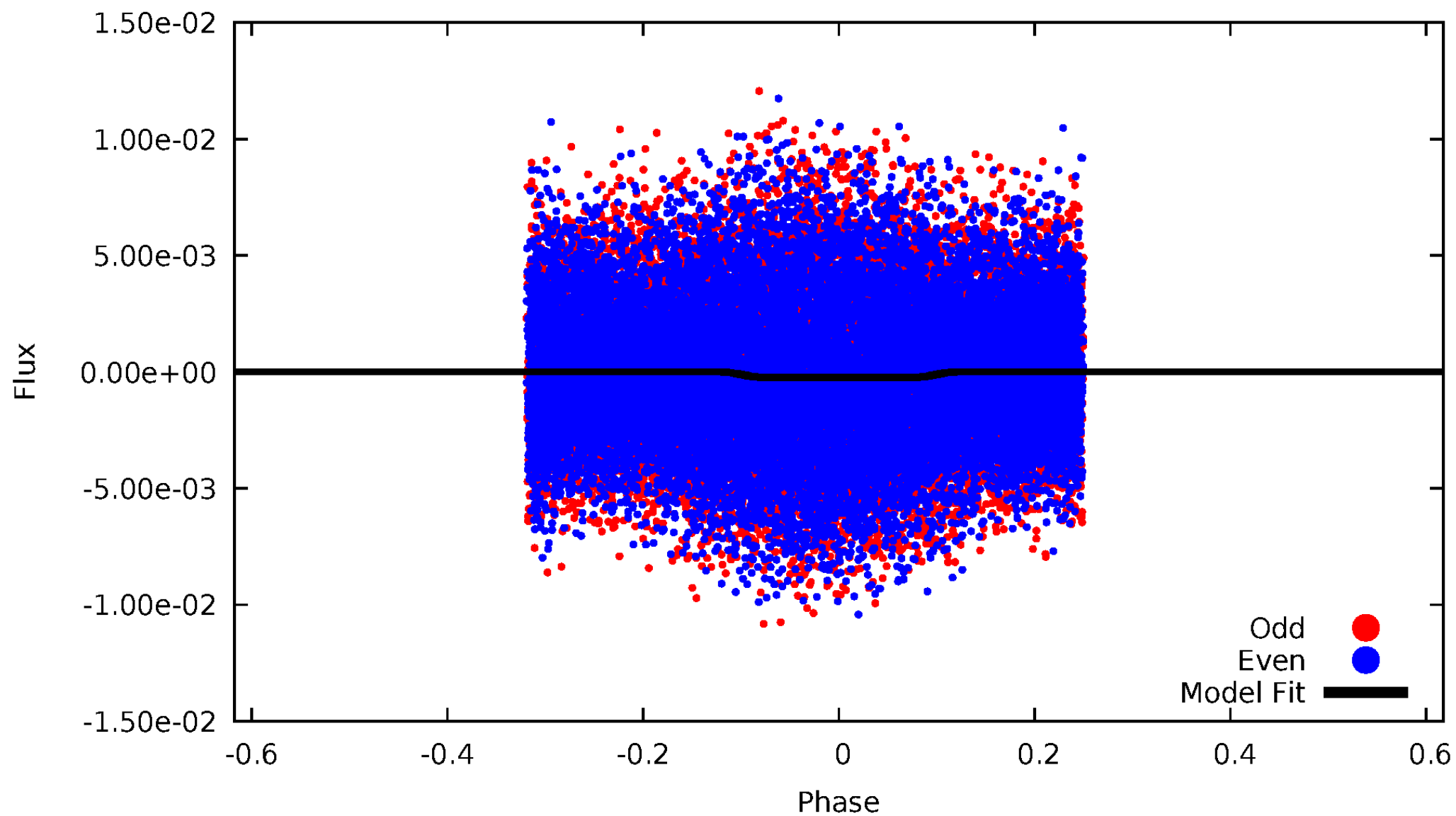
DV Odd/Even

TCE 005561316-02



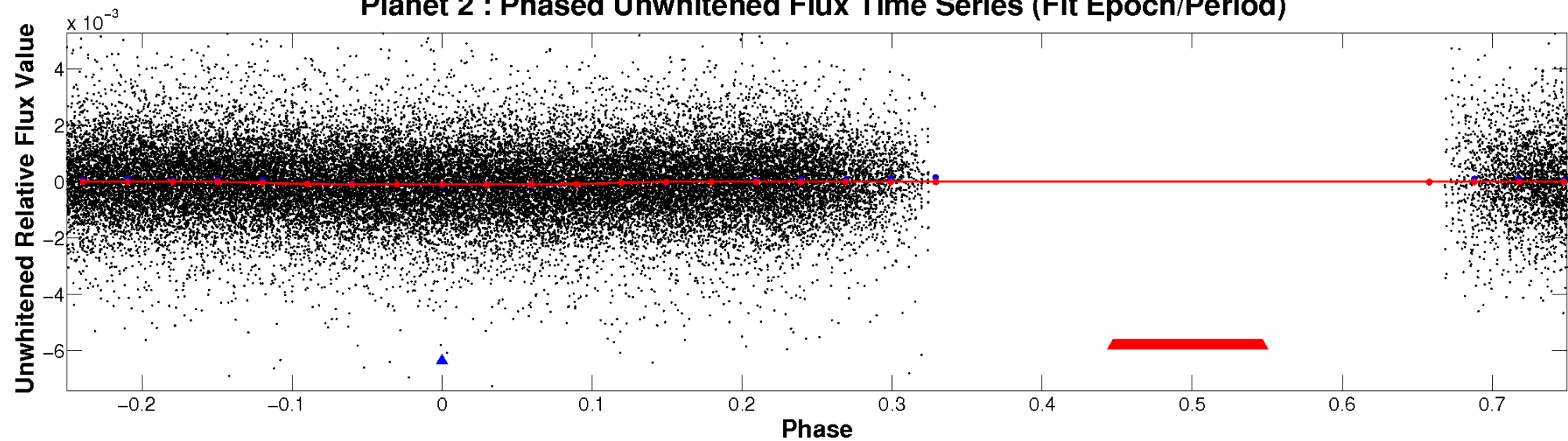
ALT Odd/Even

TCE 005561316-02

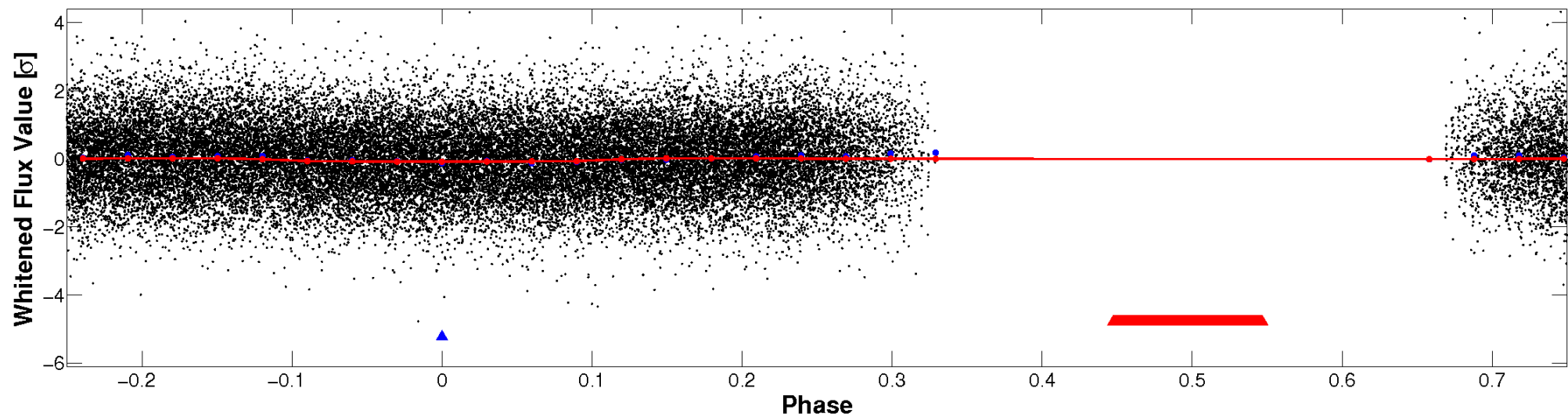


Non-Whitened Vs. Whitened Light Curve

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

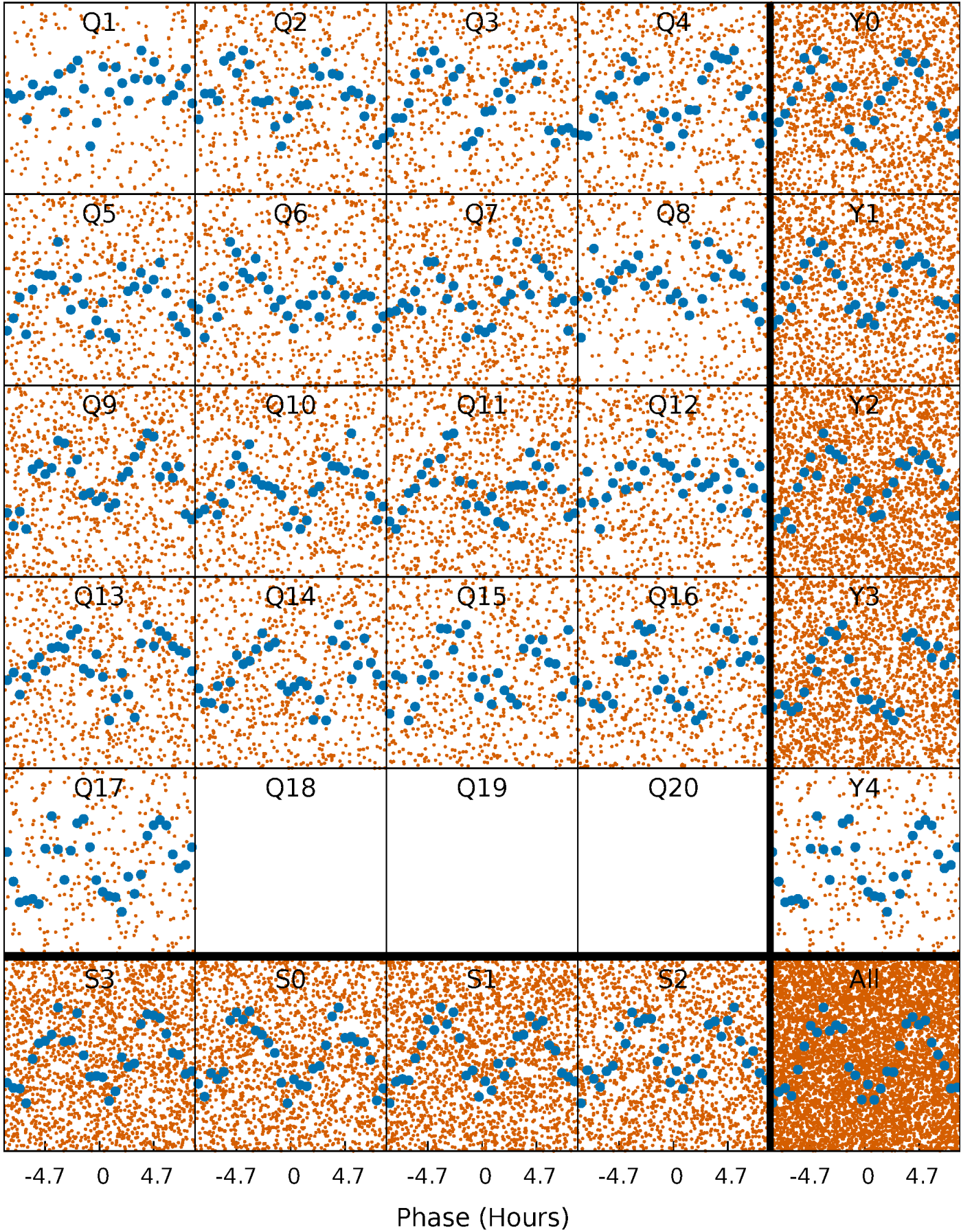


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



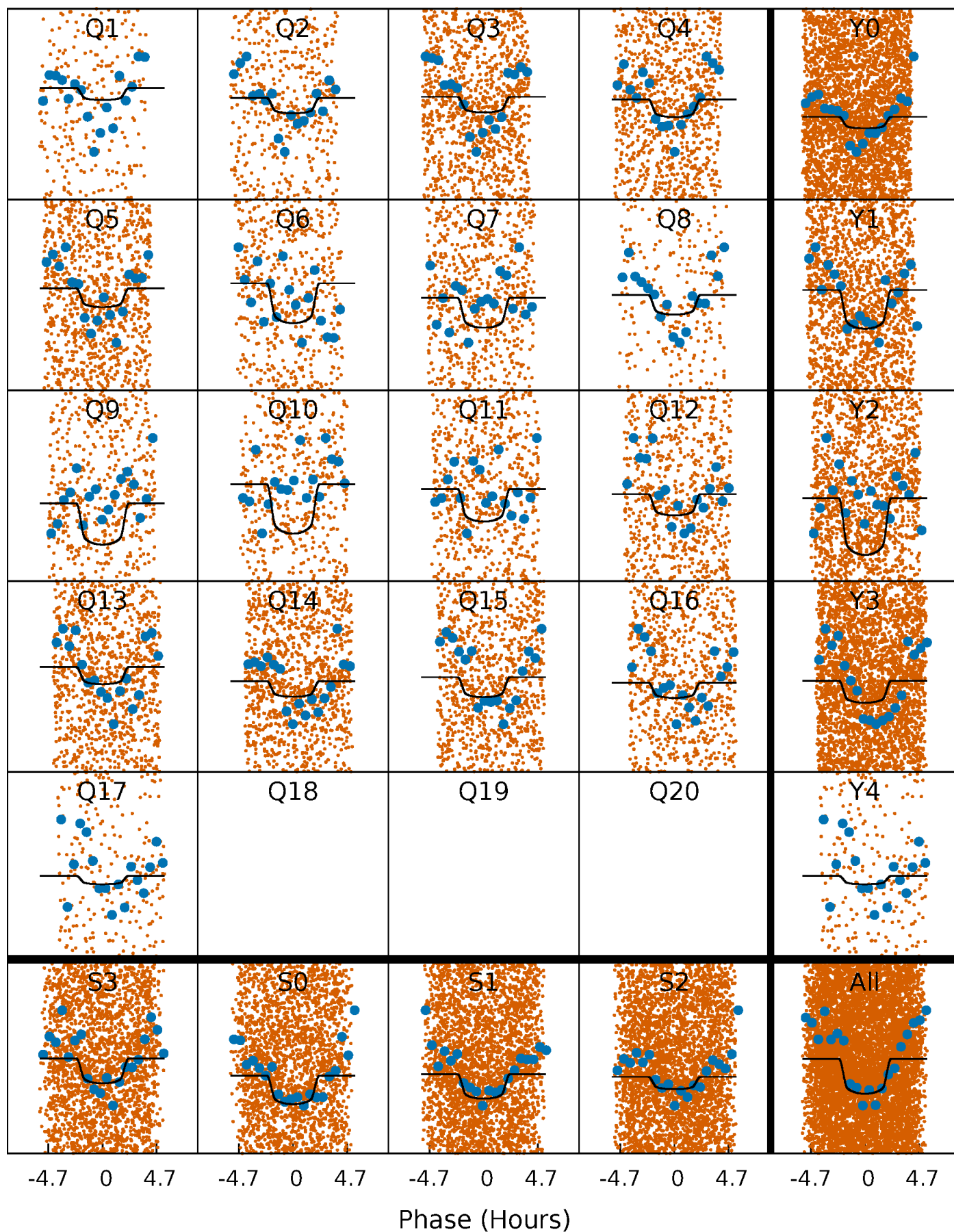
PDC Quarter-Phased Transit Curves

TCE 005561316-02 P= 0.683084 Days $T_0=131.720933$ (BKJD)



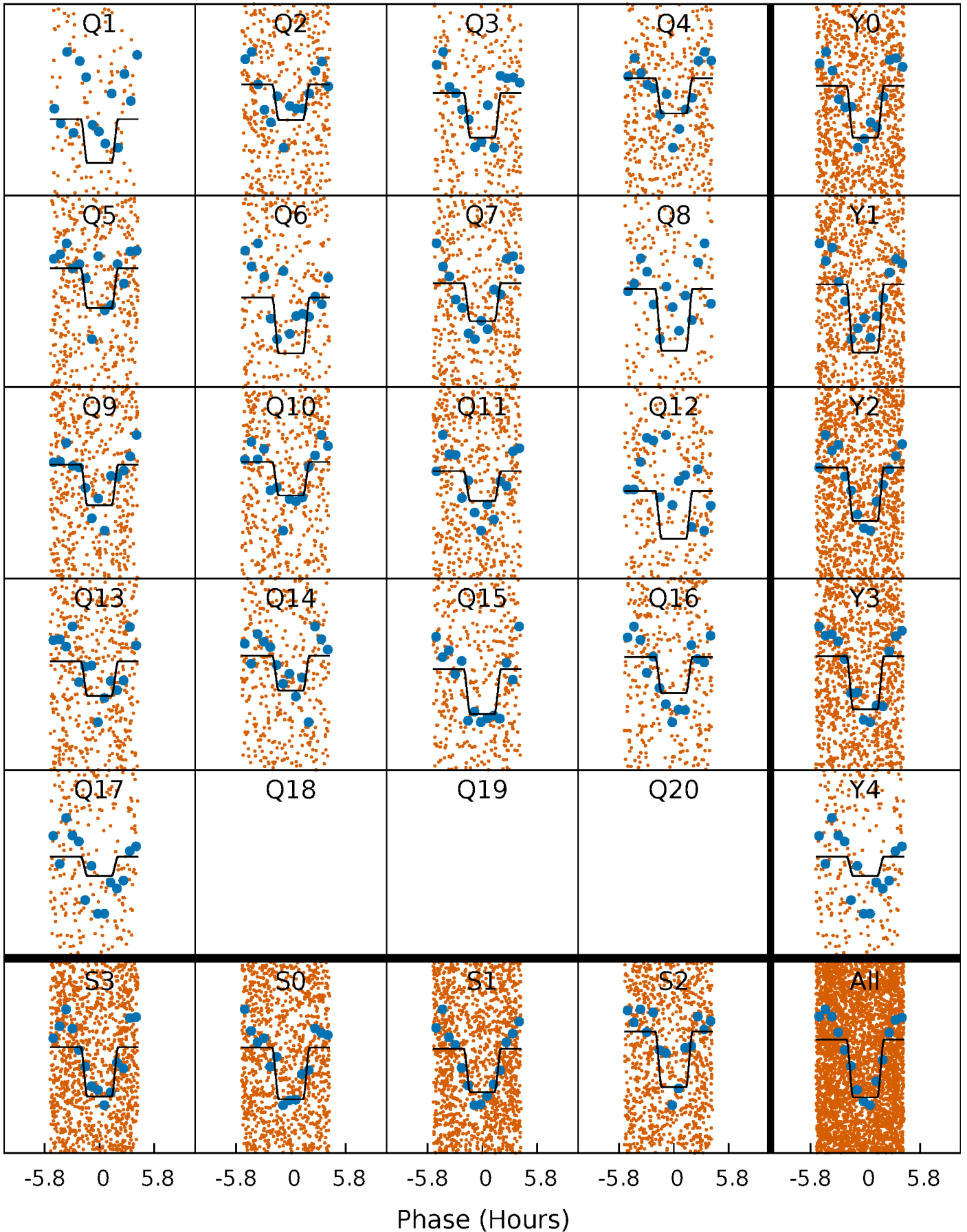
DV Quarter-Phased Transit Curves

TCE 005561316-02 P= 0.683084 Days $T_0=131.720933$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

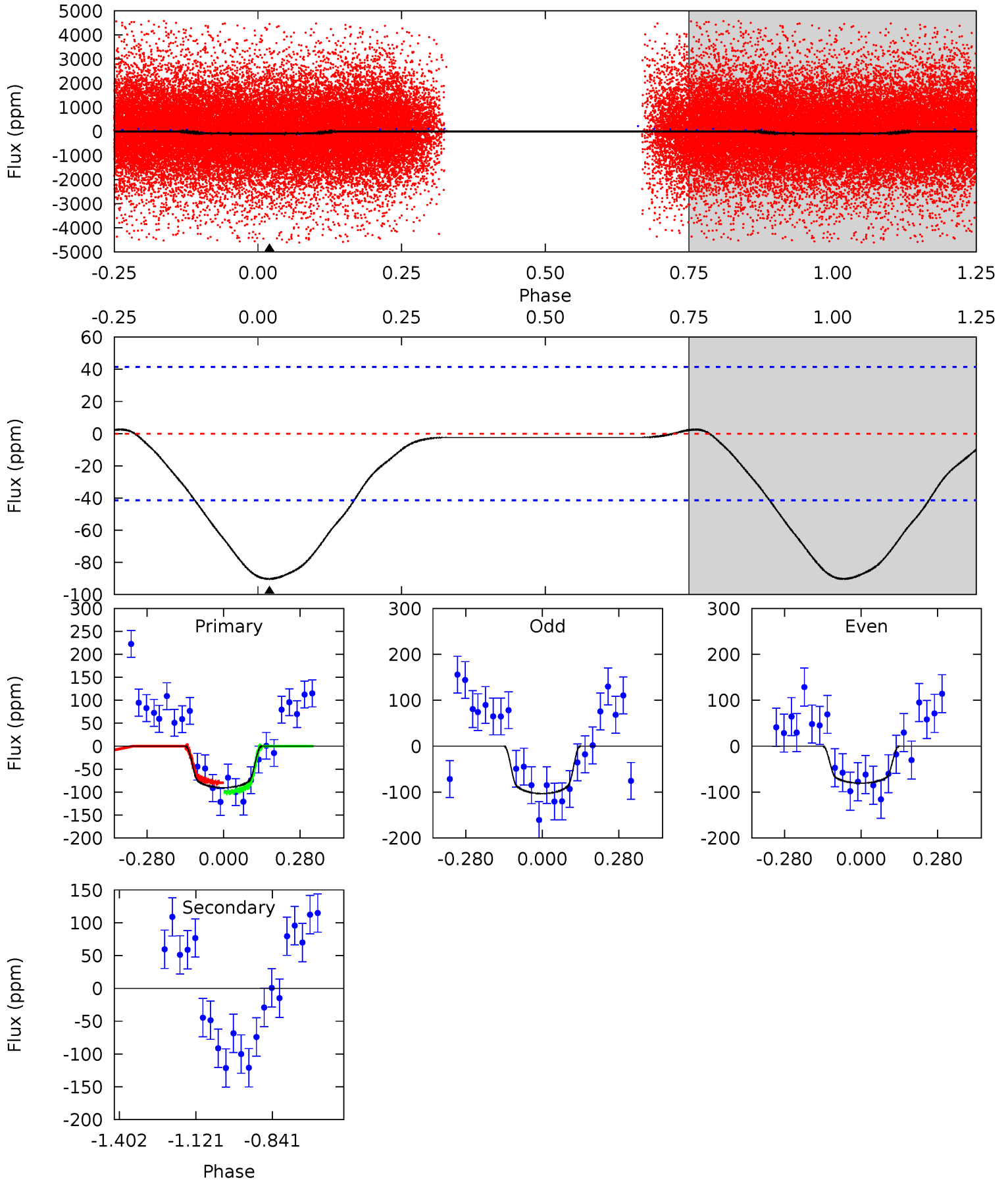
TCE 005561316-02 P= 0.683117 Days $T_0=131.706891$ (BKJD)



DV Model-Shift Uniqueness Test

005561316-02, P = 0.683084 Days, E = 131.037849 Days

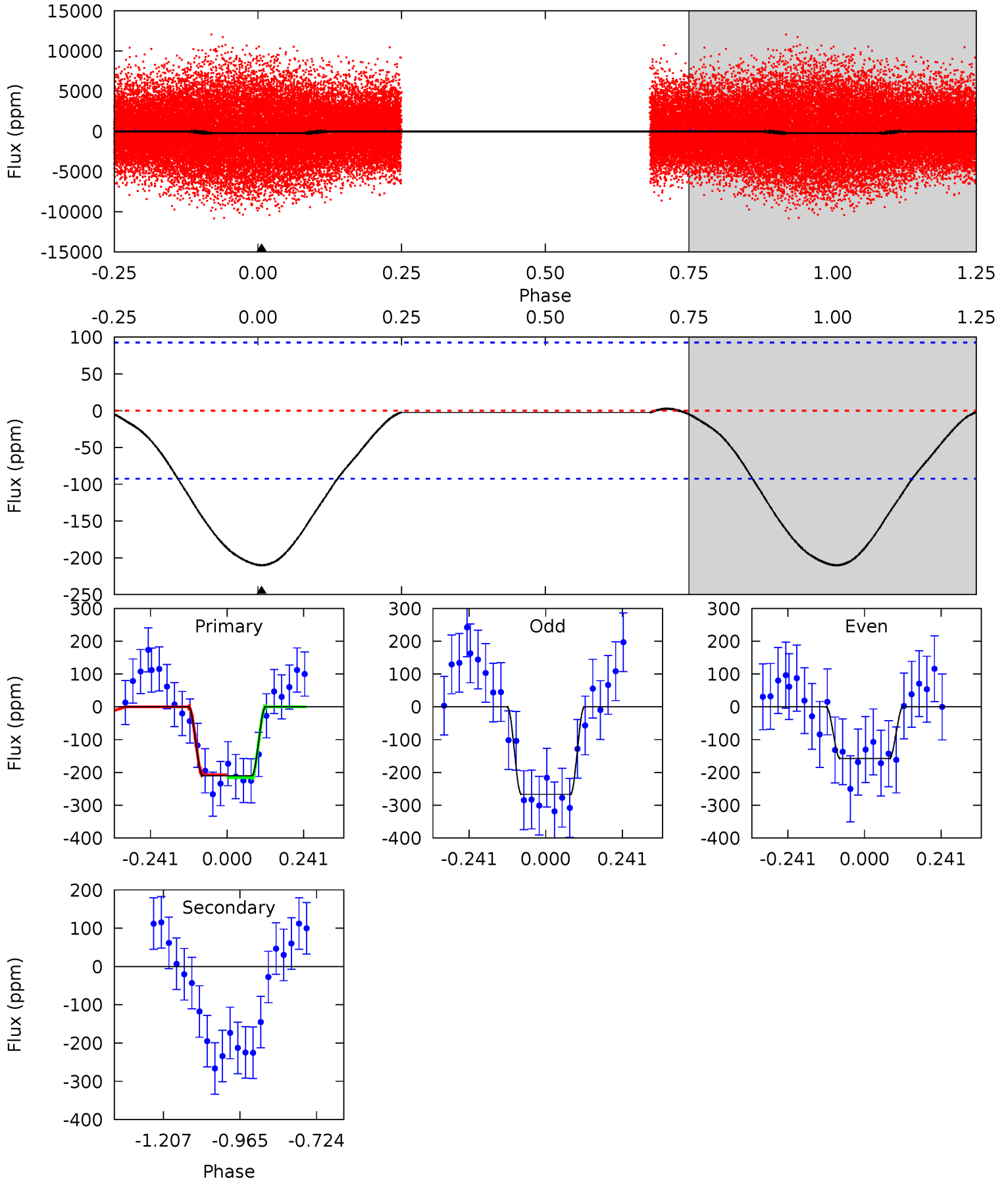
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.46	0	0	0	4.34	1.08	0.22	9.46	9.46	0	0	1.19	1.12	0.03	1.21



Alt Model-Shift Uniqueness Test

005561316-02, P = 0.683117 Days, E = 131.023774 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.94	0	0	0	4.38	1.17	0.18	9.94	9.94	0	0	2.59	1.01	0.01	0.17



Stellar Parameters For KIC 005561316

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7504^{+209}_{-314}	$4.050^{+0.165}_{-0.165}$	$-0.040^{+0.200}_{-0.350}$	$2.019^{+0.517}_{-0.517}$	$1.665^{+0.200}_{-0.300}$	$0.285^{+0.265}_{-0.139}$
	+3%/-4%	+4%/-4%	+500%/-875%	+26%/-26%	+12%/-18%	+93%/-49%
Source	KIC0	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 005561316-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 10	$2.22^{+0.80}_{-0.71}$	4881^{+353}_{-338}	-4269^{+7516}_{-678}	$-0.016^{+0.389}_{-0.370}$
Alt.	0 ± 21	$3.31^{+0.88}_{-0.79}$	4908^{+357}_{-394}	-4251^{+7279}_{-732}	$-0.022^{+0.363}_{-0.363}$

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 $A_{obs} \gg 1.0$

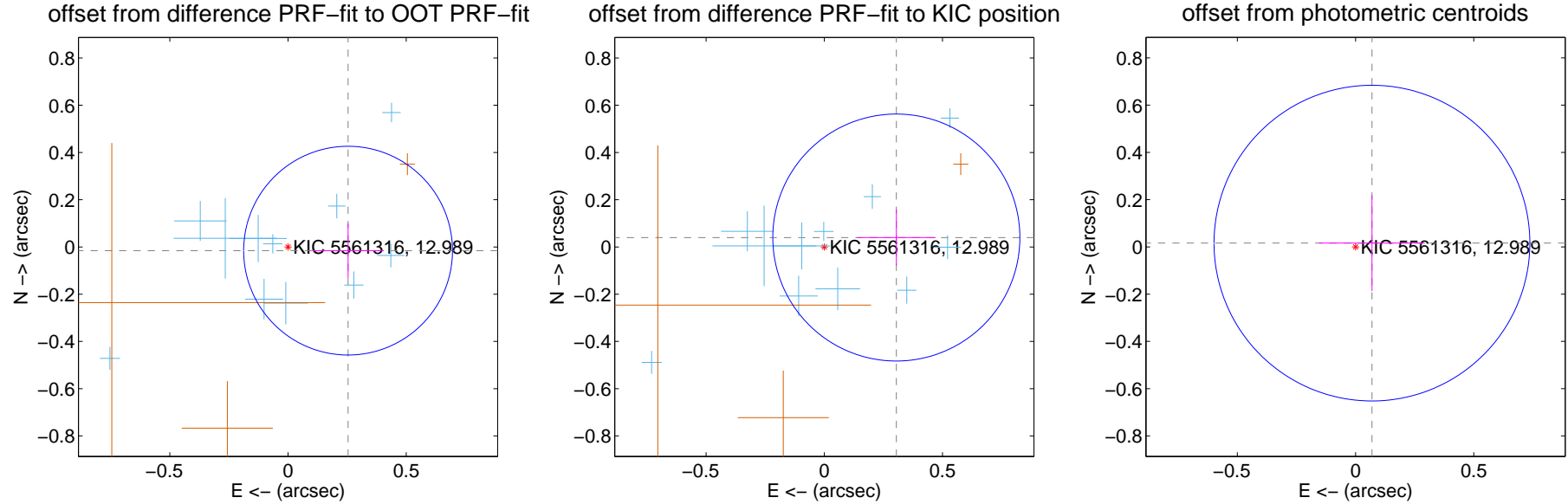
DV Centroid Data

Supplemental centroid analysis for 005561316-02. Kepler magnitude: 12.99. Transit SNR 9.20

There are 13 quarters with good PRF difference image offsets

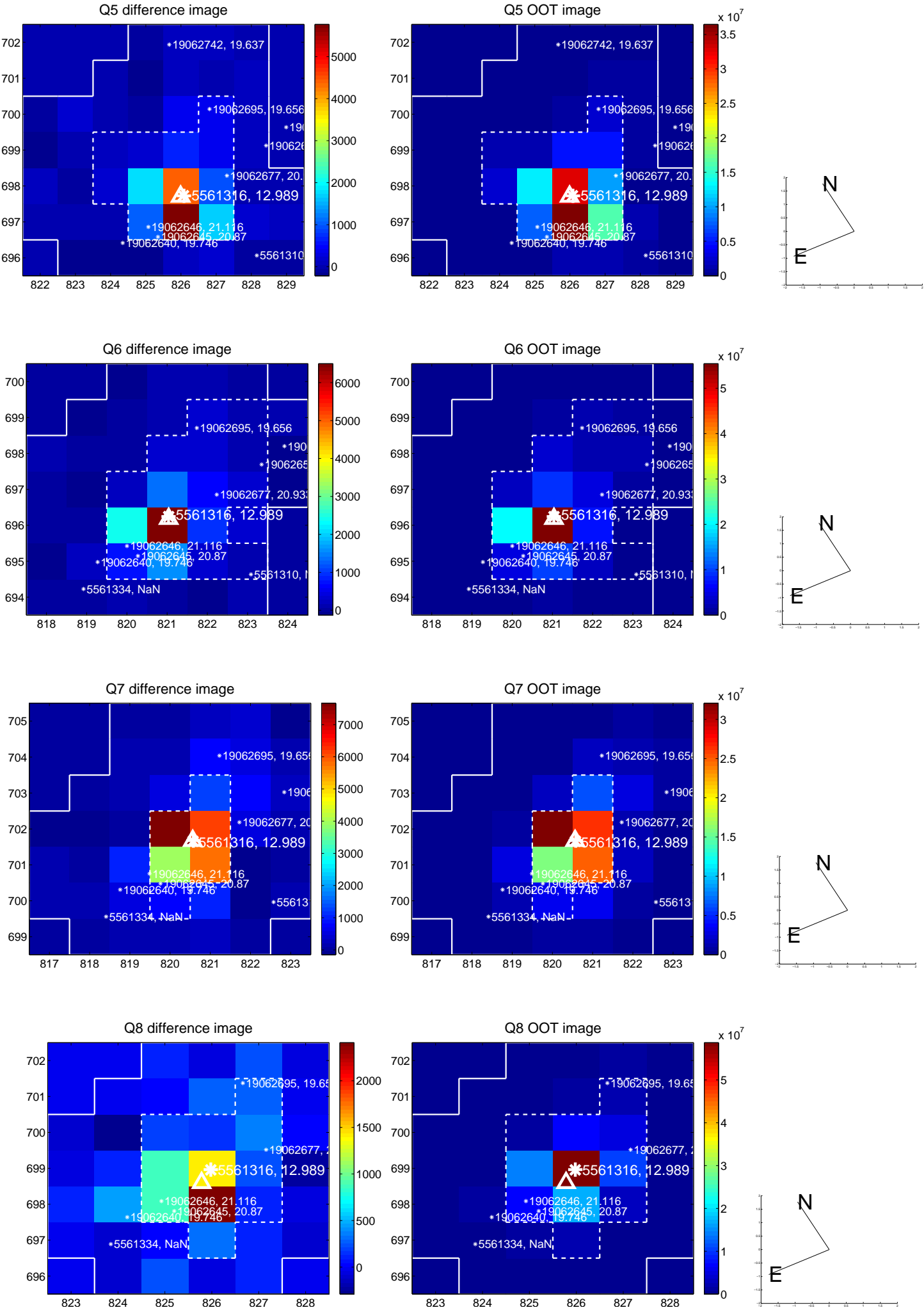
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.255 ± 0.147	1.73	-0.254 ± 0.151	-0.016 ± 0.115
PRF-fit source offset from KIC position	0.307 ± 0.174	1.76	-0.305 ± 0.166	0.040 ± 0.118
photometric centroid source offset	0.07 ± 0.22	0.32	-0.07 ± 0.22	0.02 ± 0.20

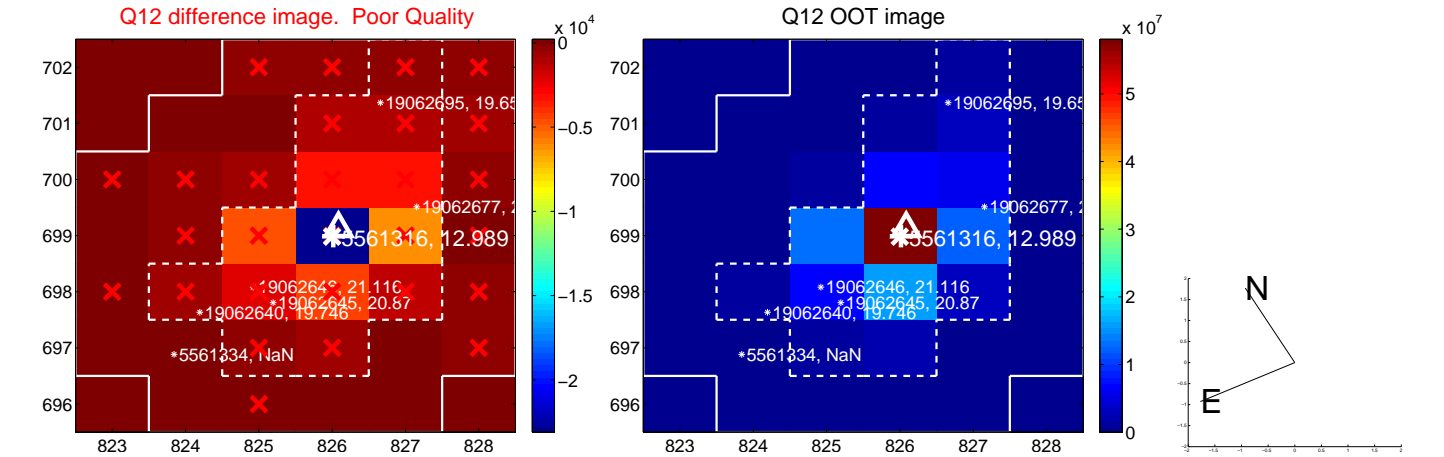
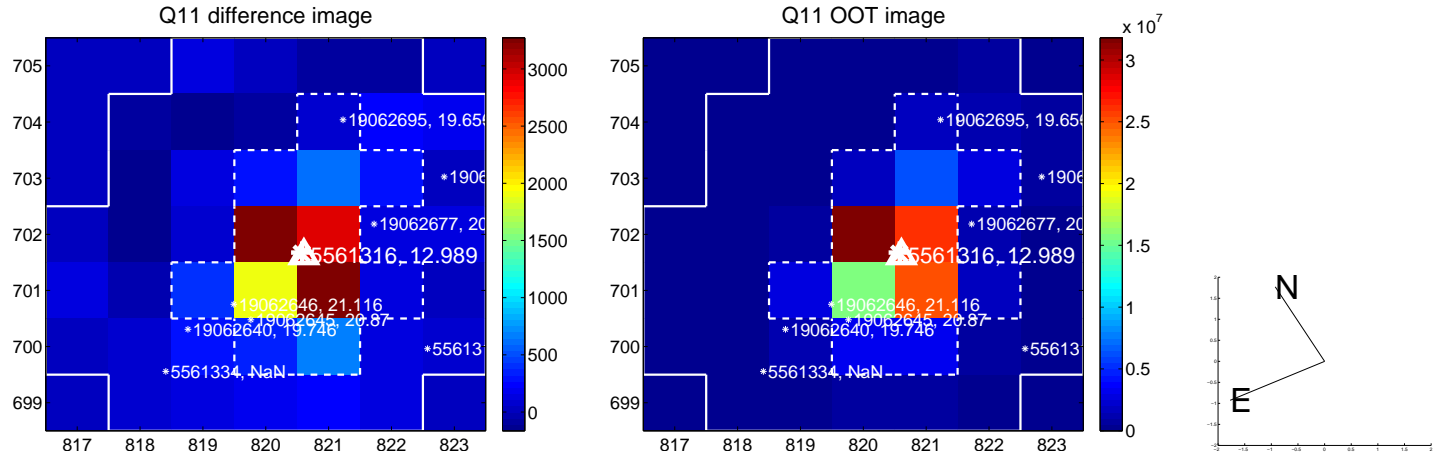
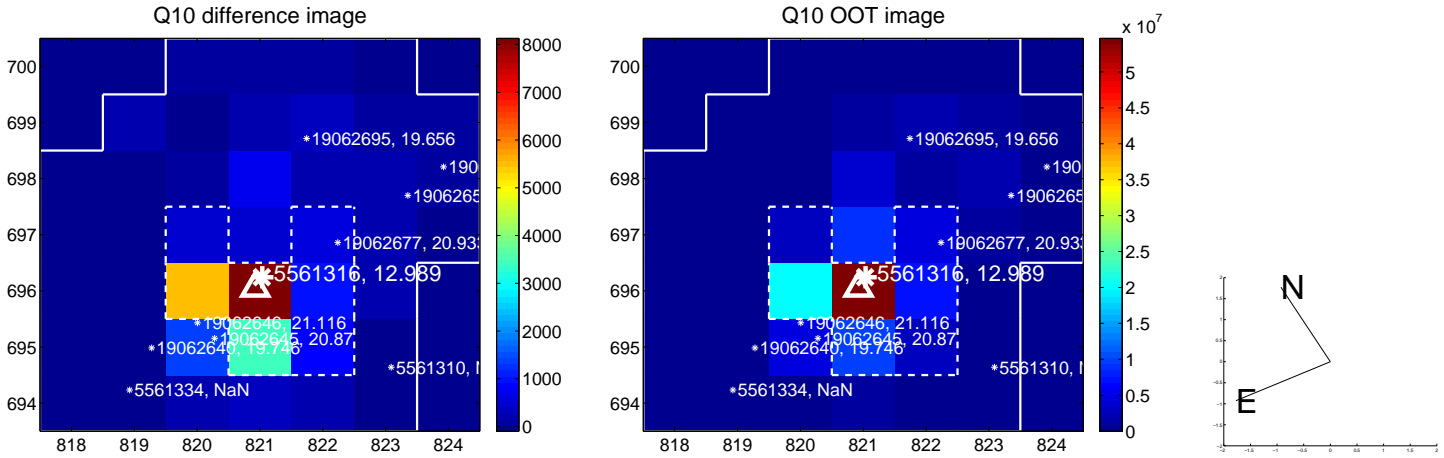
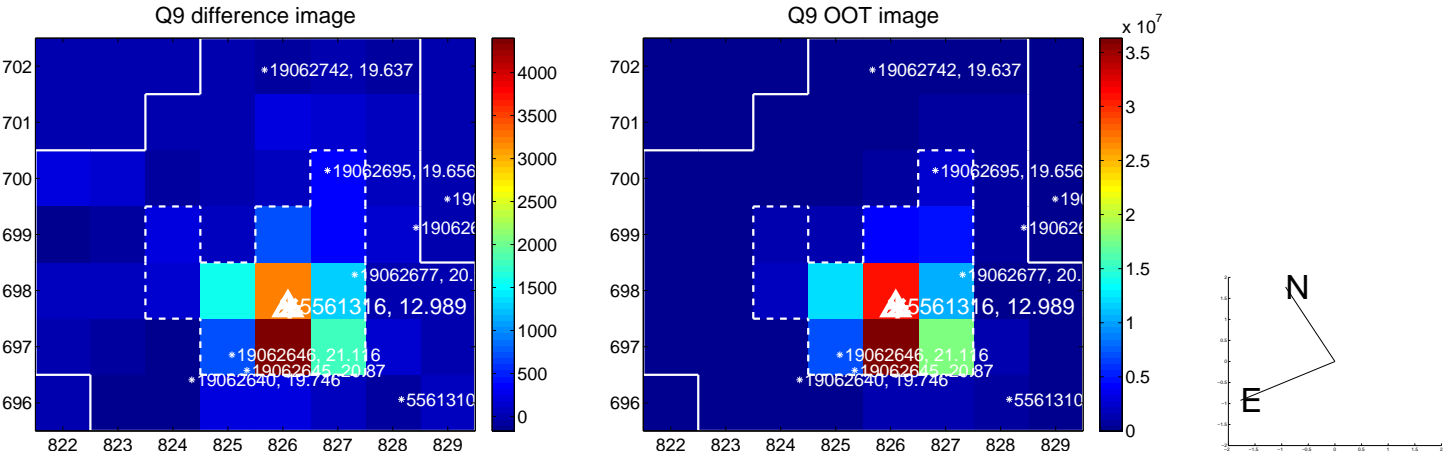


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

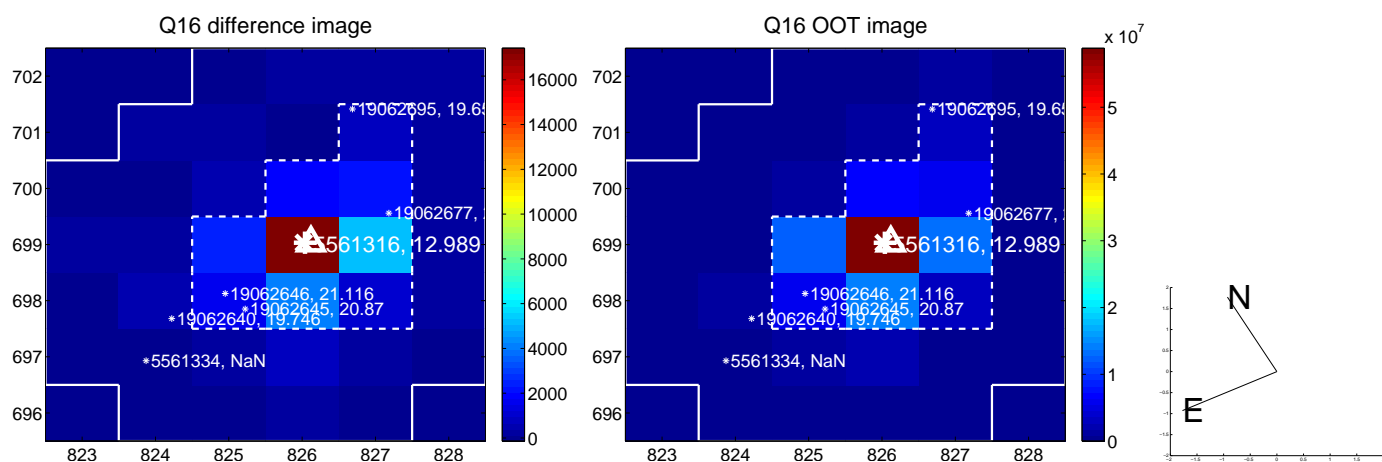
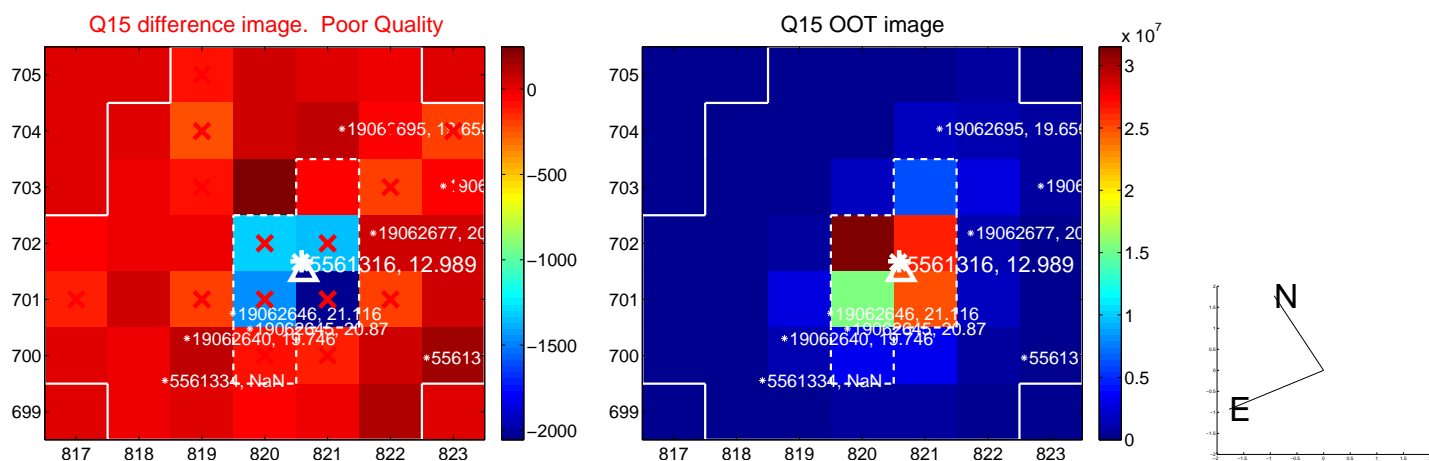
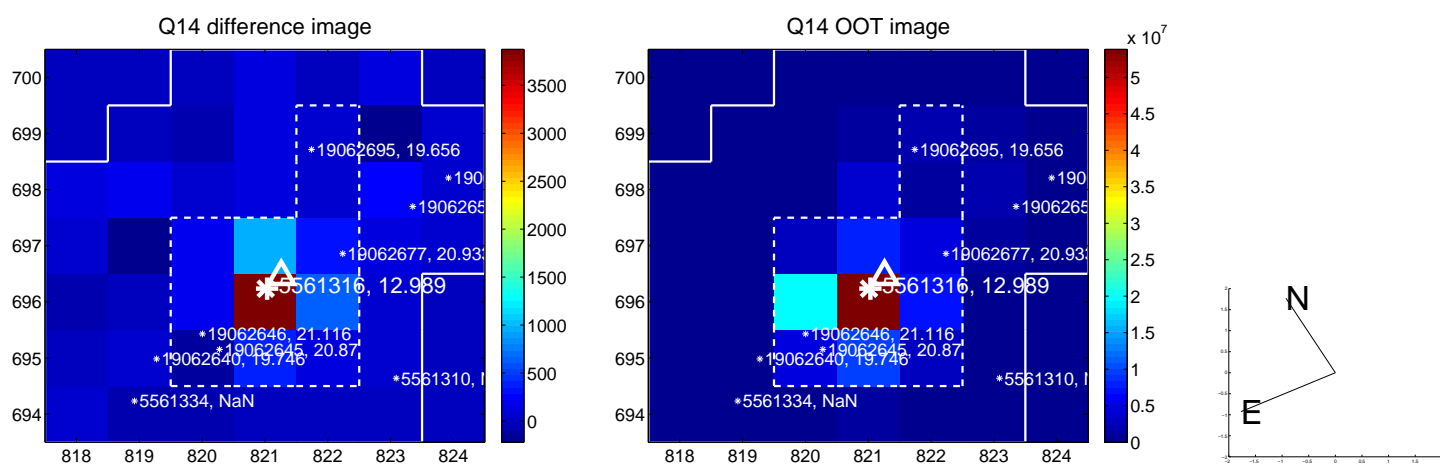
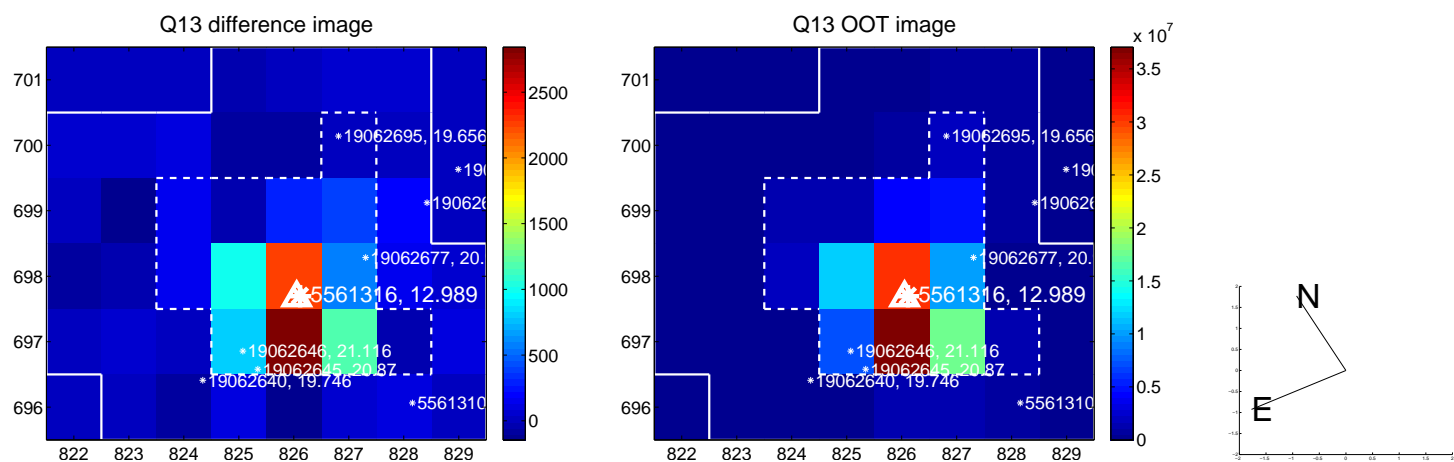
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



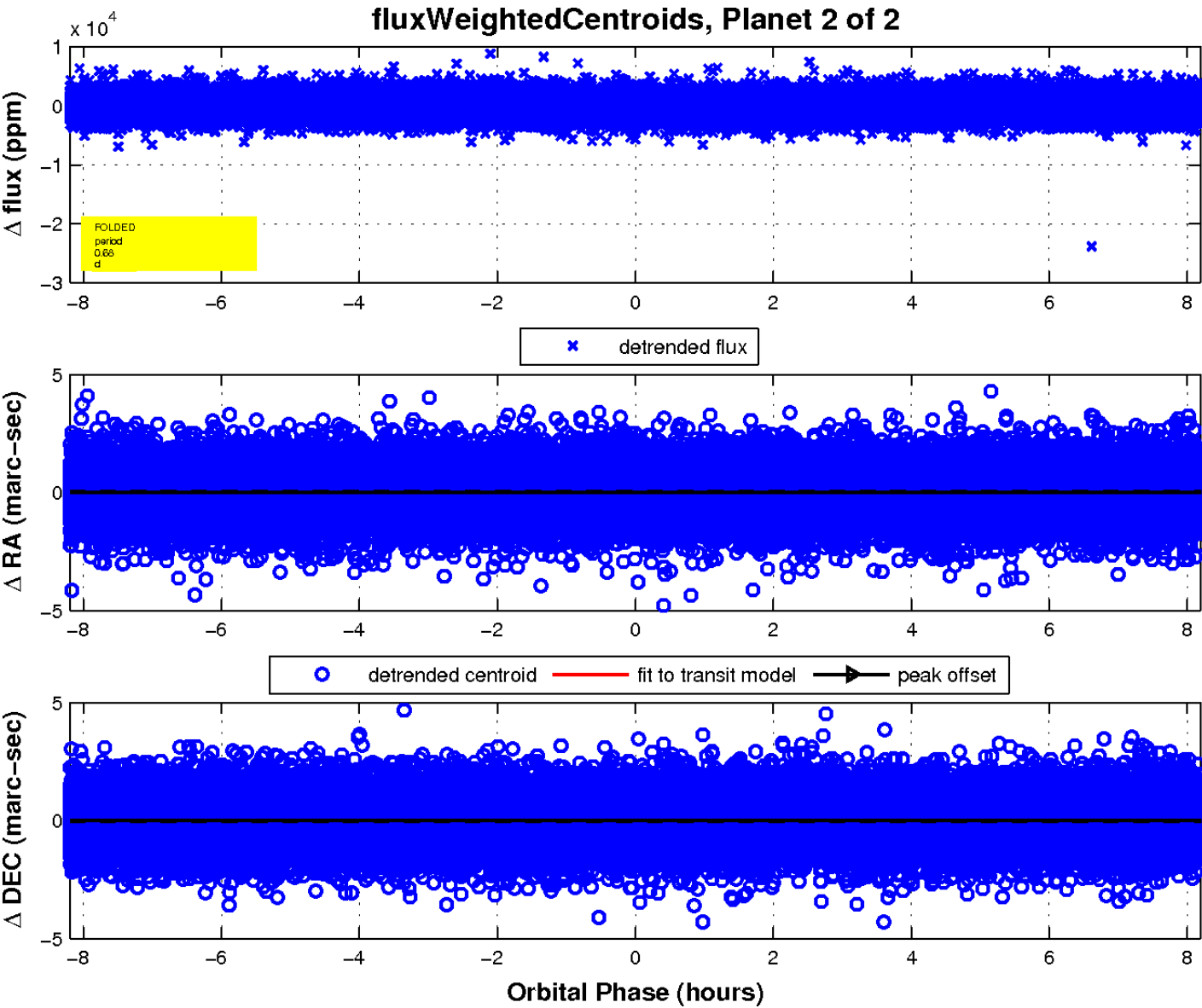
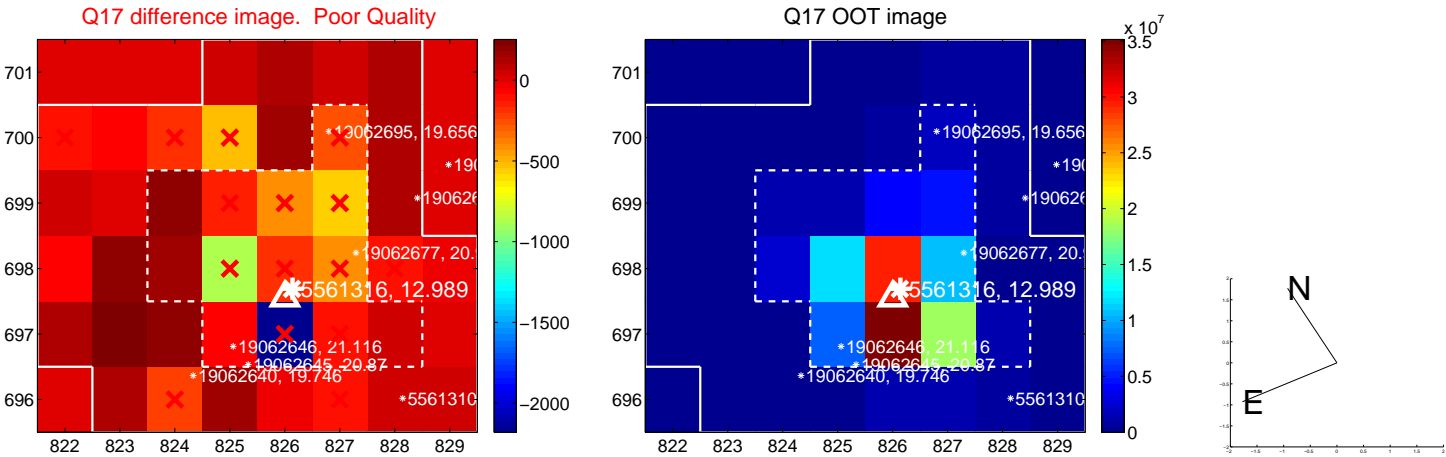
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

