

# KIC 008129189

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008129189-01	OBS	6975.01	53.647086	152.972022	208222.1	19.423	11994.6	3949.0	2.94	5261	133.62	76.03
008129189-02	OBS	No	53.647017	133.100513	22048.5	19.787	1284.4	1304.3	2.94	5261	77.05	76.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008129189-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—HAS_SEC_TCE
008129189-02	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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

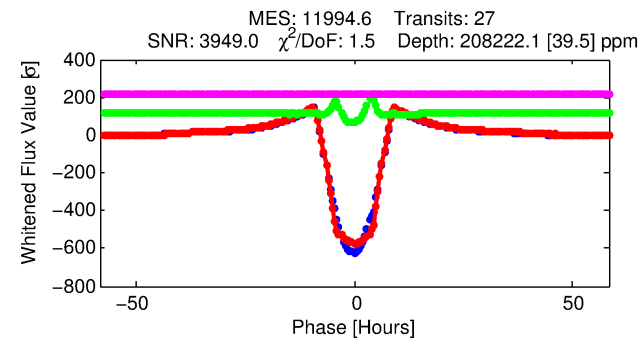
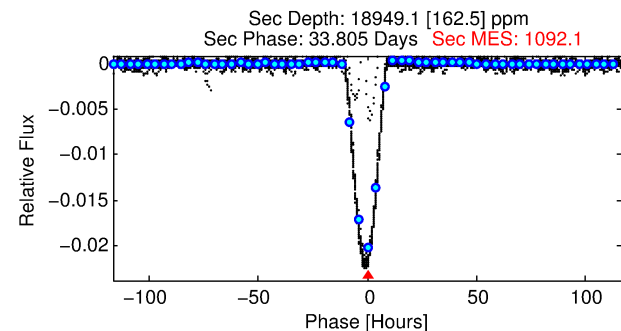
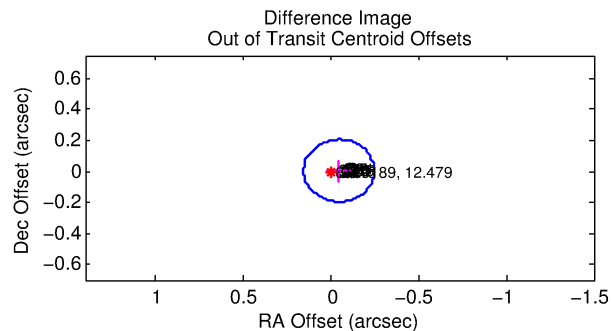
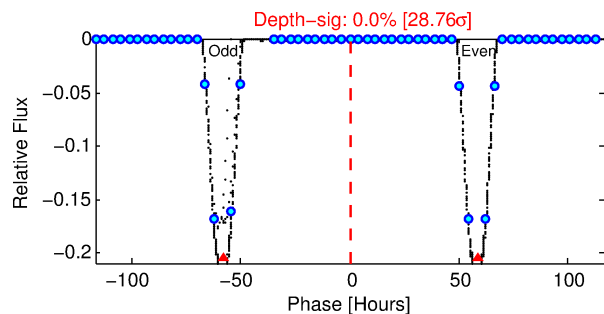
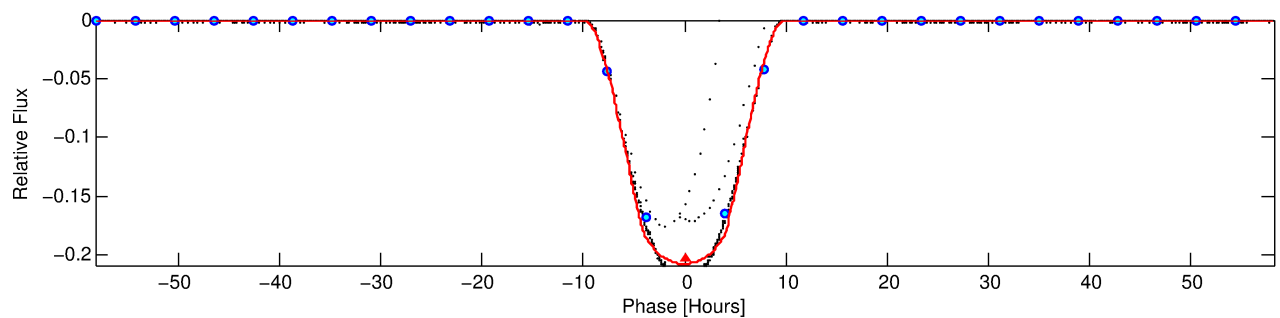
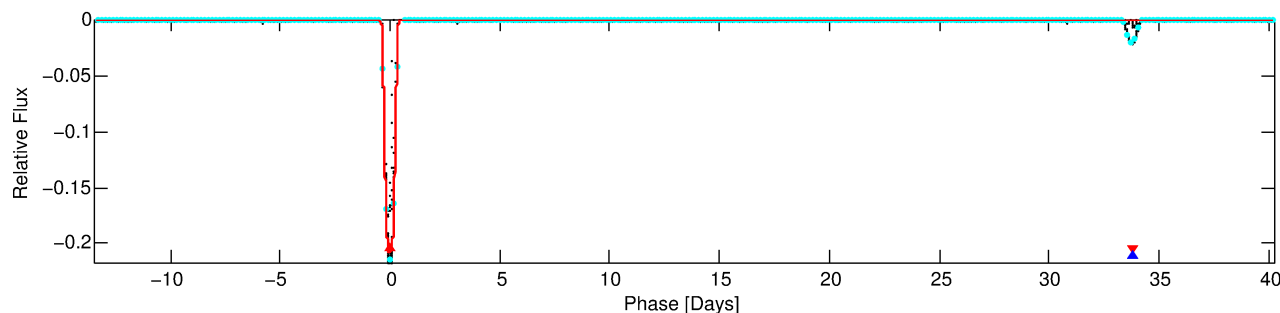
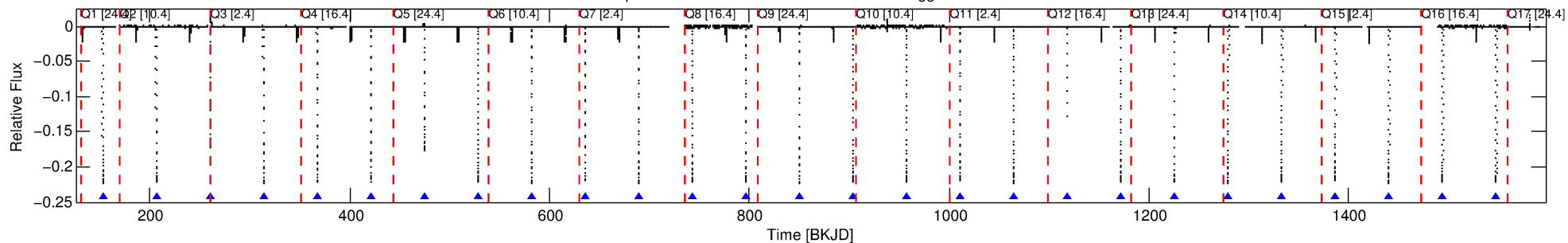
## Ephemeris Match Information For 008129189-01

No Significant Match Found

# DV One-Page Summary

KIC: 8129189 Candidate: 1 of 2 Period: 53.647 d  
KOI: K06975.01 Corr: 0.986

Kp: 12.48 R\*: 2.94 Rs Teff: 5261.0 K Logg: 3.51 Fe/H: -0.620



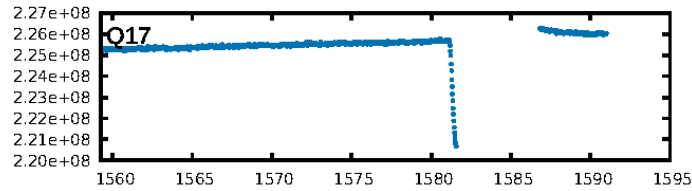
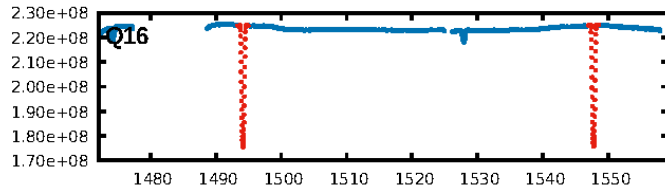
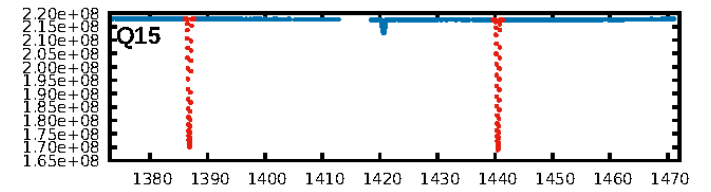
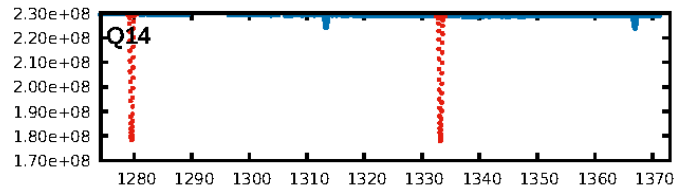
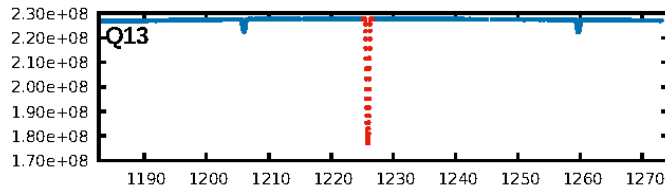
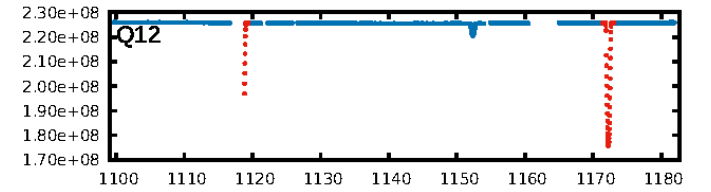
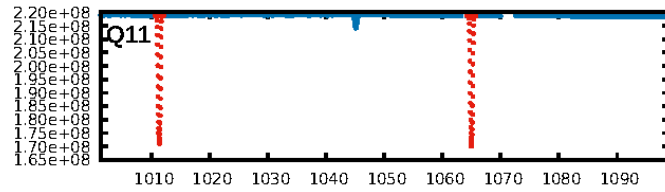
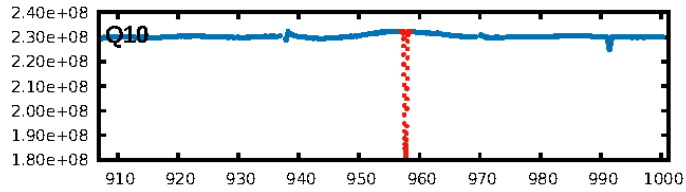
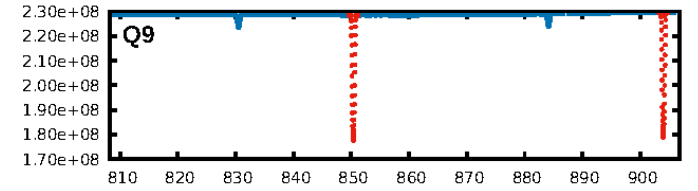
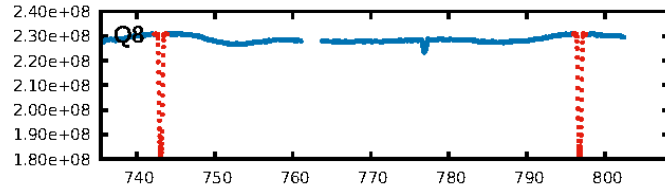
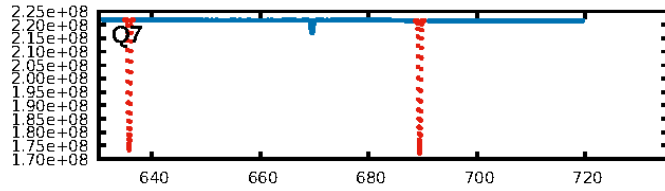
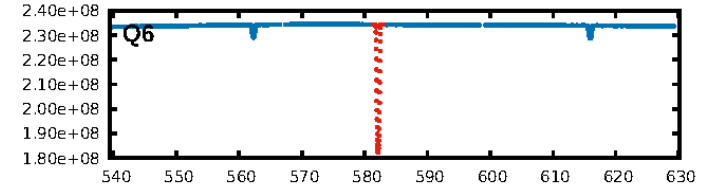
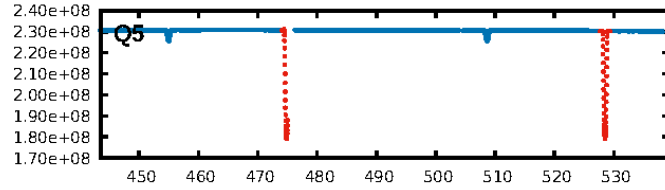
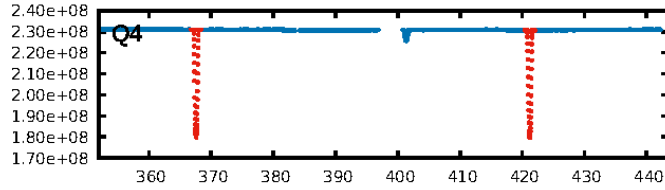
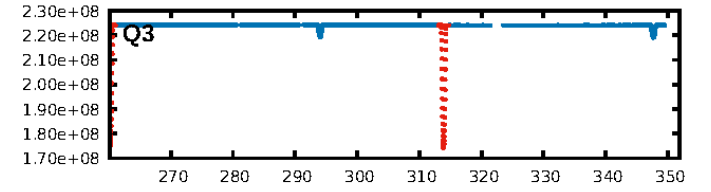
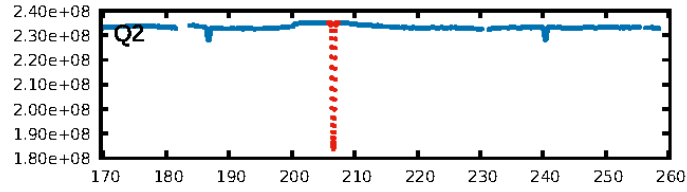
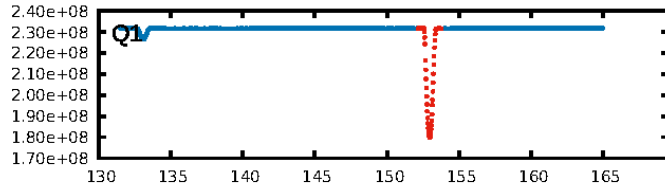
## DV Fit Results:

Period = 53.64709 [0.00000] d  
Epoch = 152.9720 [0.0001] BKJD  
Rp/R\* = 0.4161 [0.0001]  
a/R\* = 29.89 [0.01]  
b = 0.00 [0.16]  
Seff = 76.03 [26.86]  
Teq = 753 [66] K  
Rp = 133.62 [37.14] Re  
a = 0.2796 [0.0655] AU  
Ag = 45.66 [15.60] [2.86σ]  
Teffp = 3026 [68] K [23.87σ]

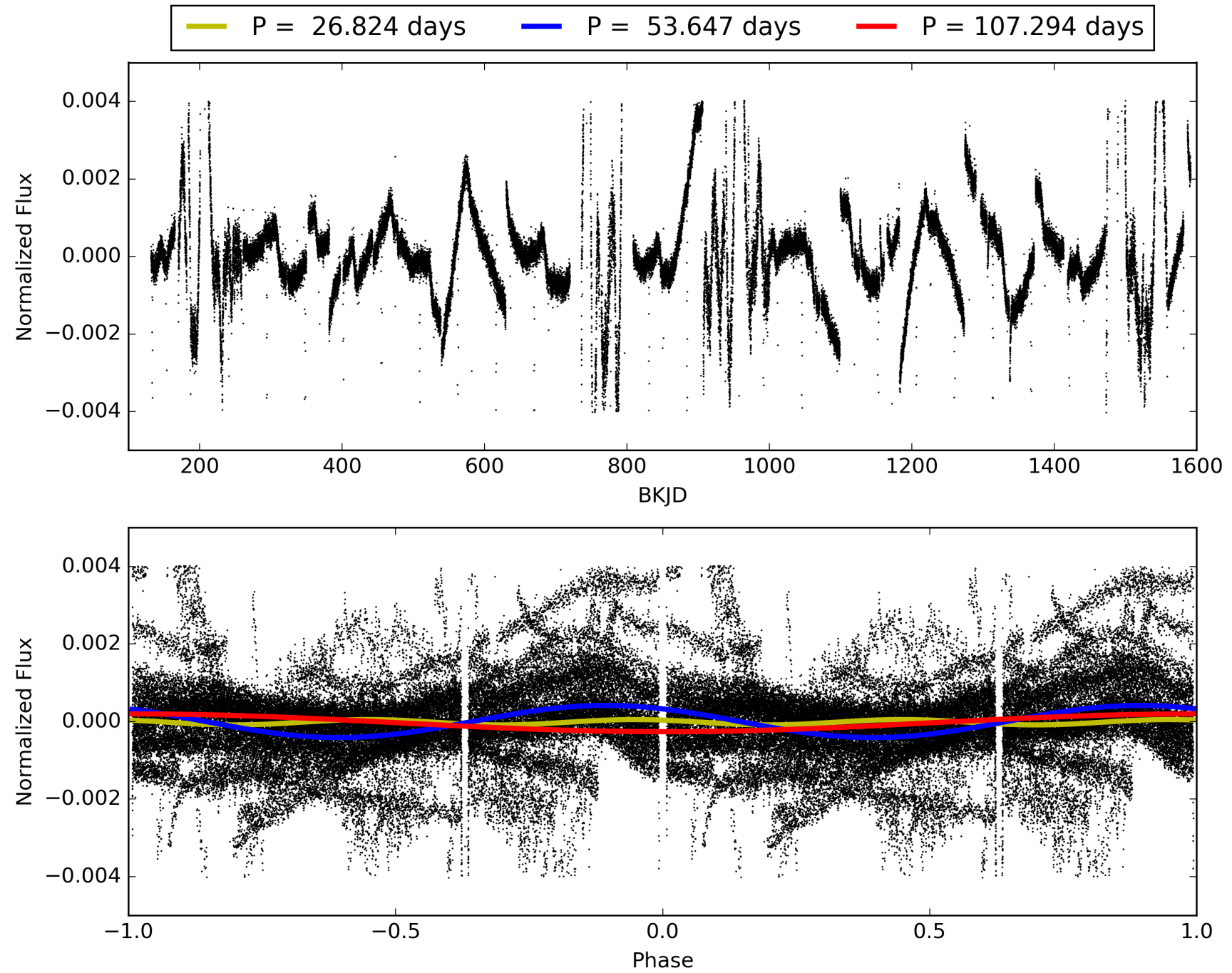
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [26/26]  
GhostDiagnostic-chr: 3.235  
Centroid-sig: 0.0%  
Centroid-so: 0.058 arcsec [87.29σ]  
OotOffset-rm: 0.047 arcsec [0.70σ]  
OotOffset-st: 4/4/3/3 [14]  
KicOffset-rm: 0.055 arcsec [0.78σ]  
KicOffset-st: 4/4/3/3 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 008129189-01, PDC Light Curves

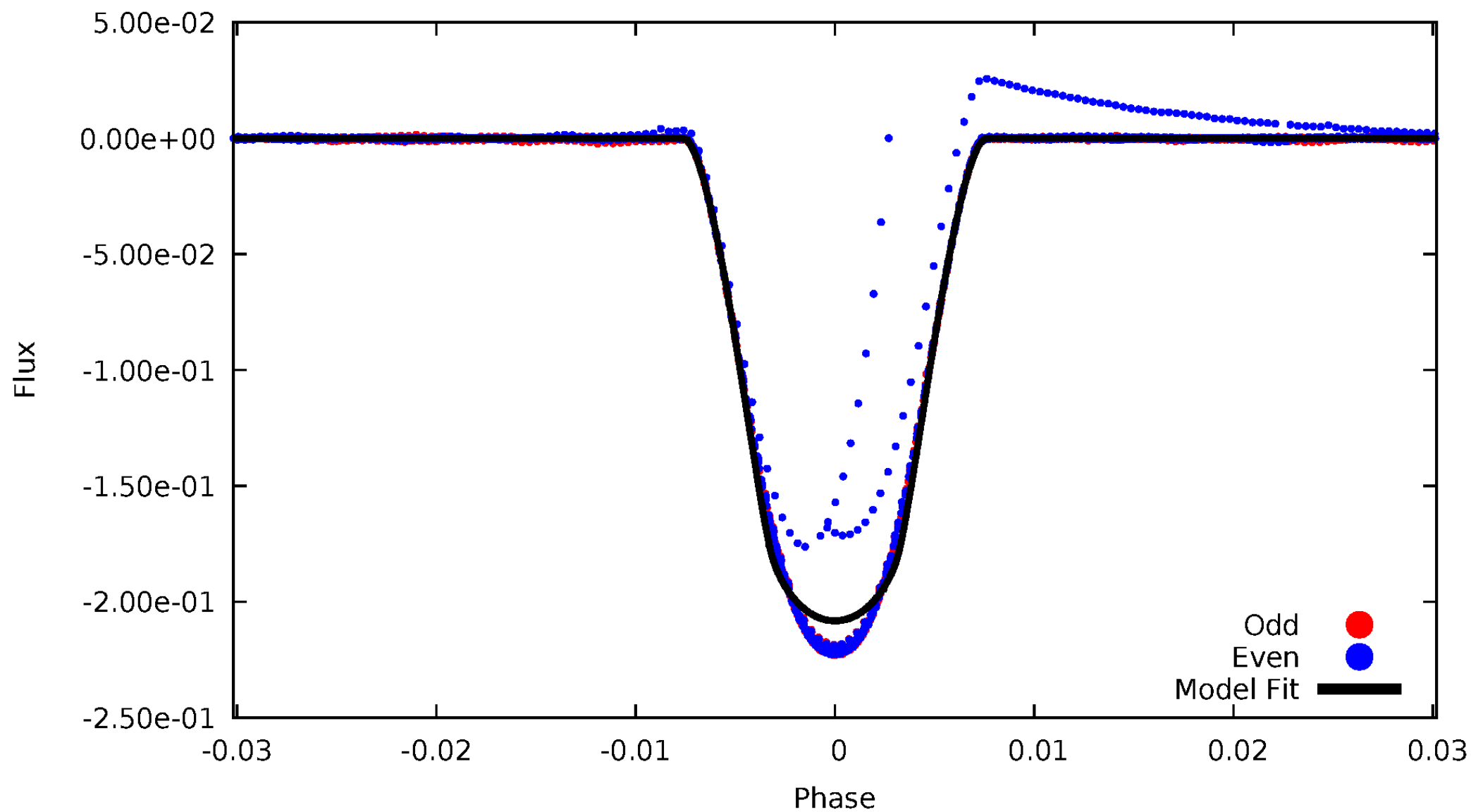


TCE 008129189-01



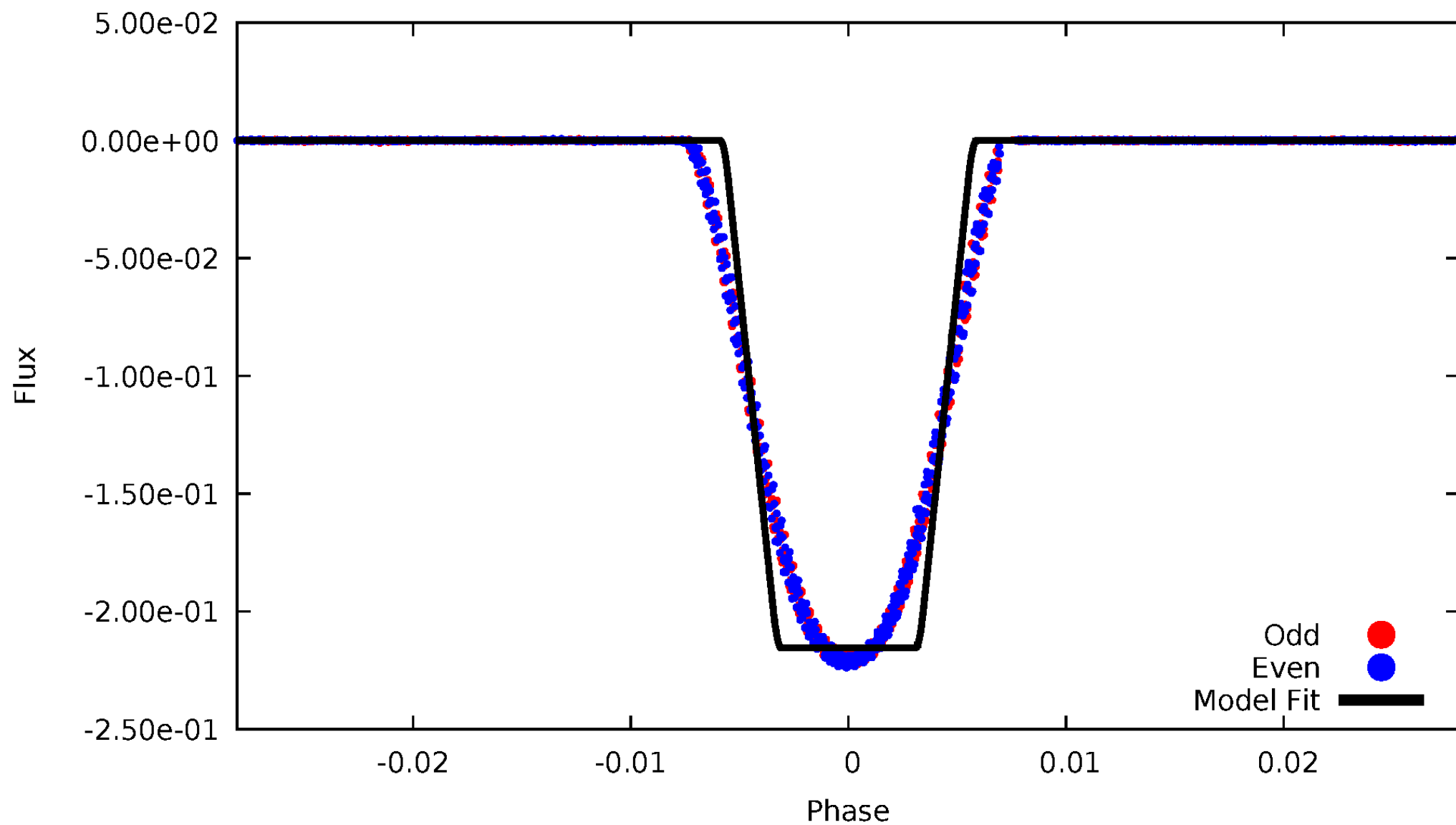
# DV Odd/Even

TCE 008129189-01



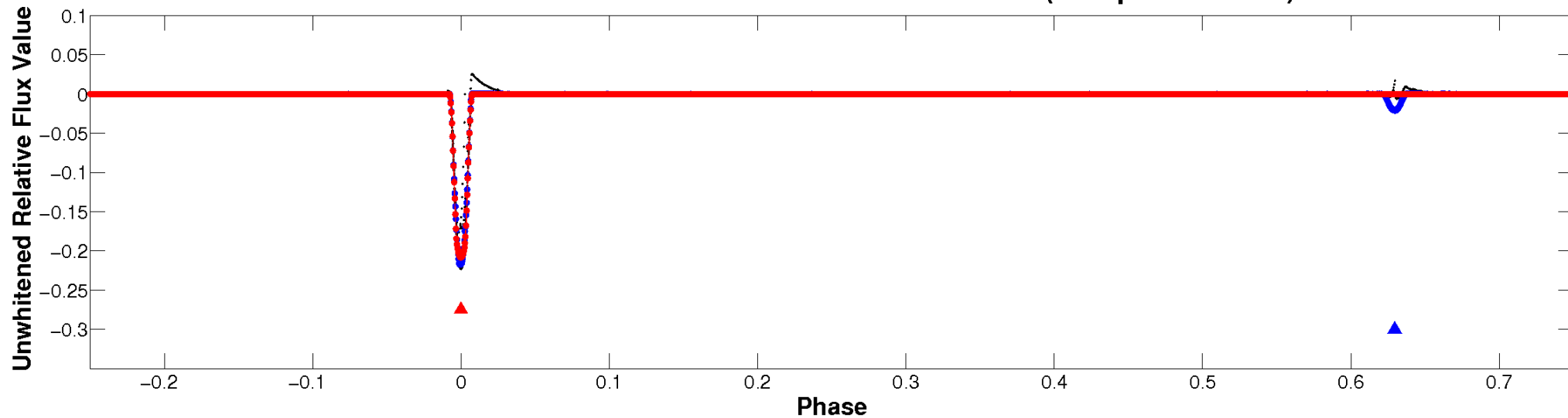
# ALT Odd/Even

TCE 008129189-01

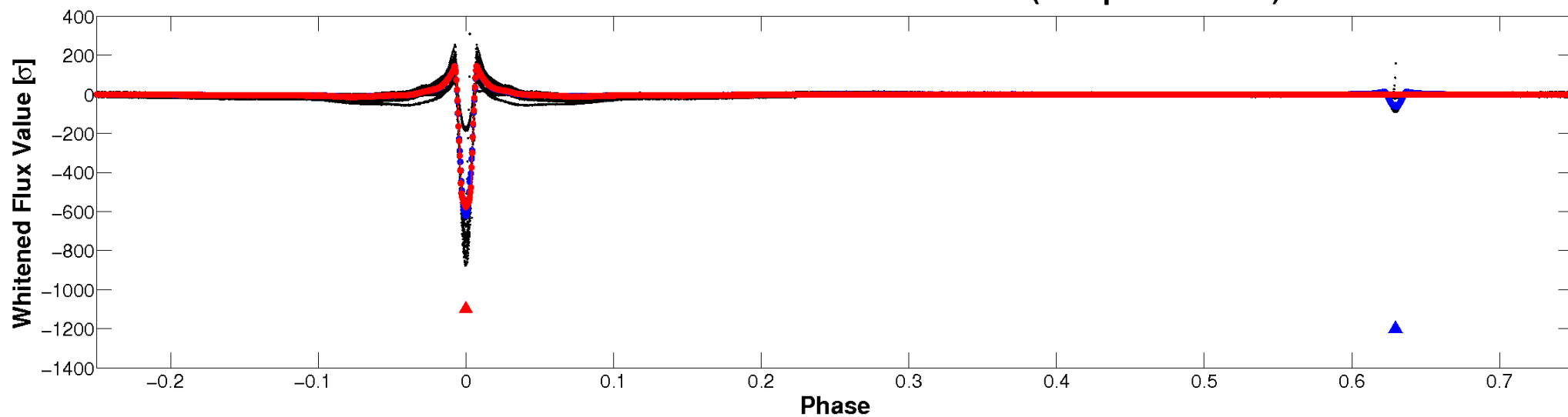


# Non-Whitened Vs. Whitened Light Curve

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

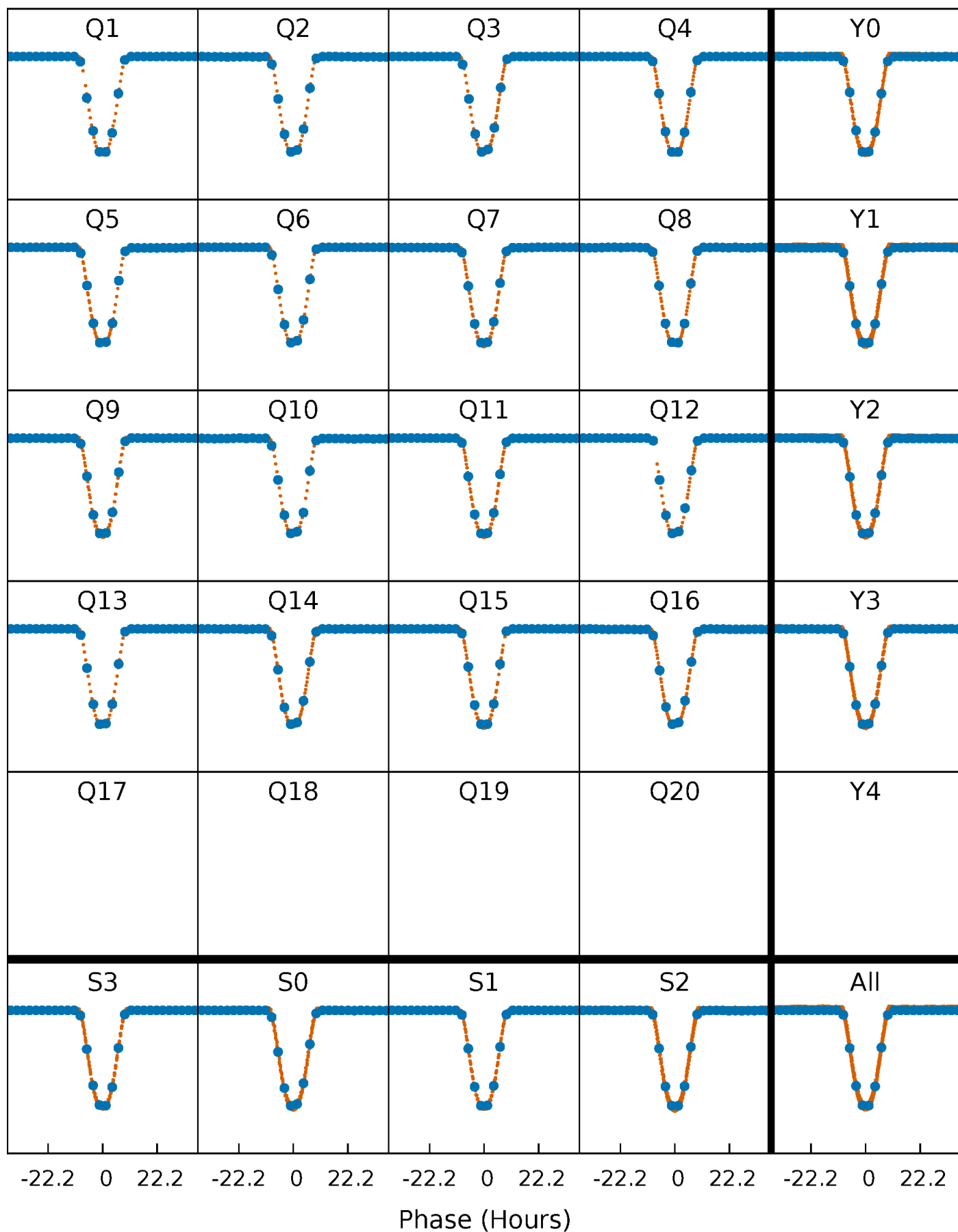


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

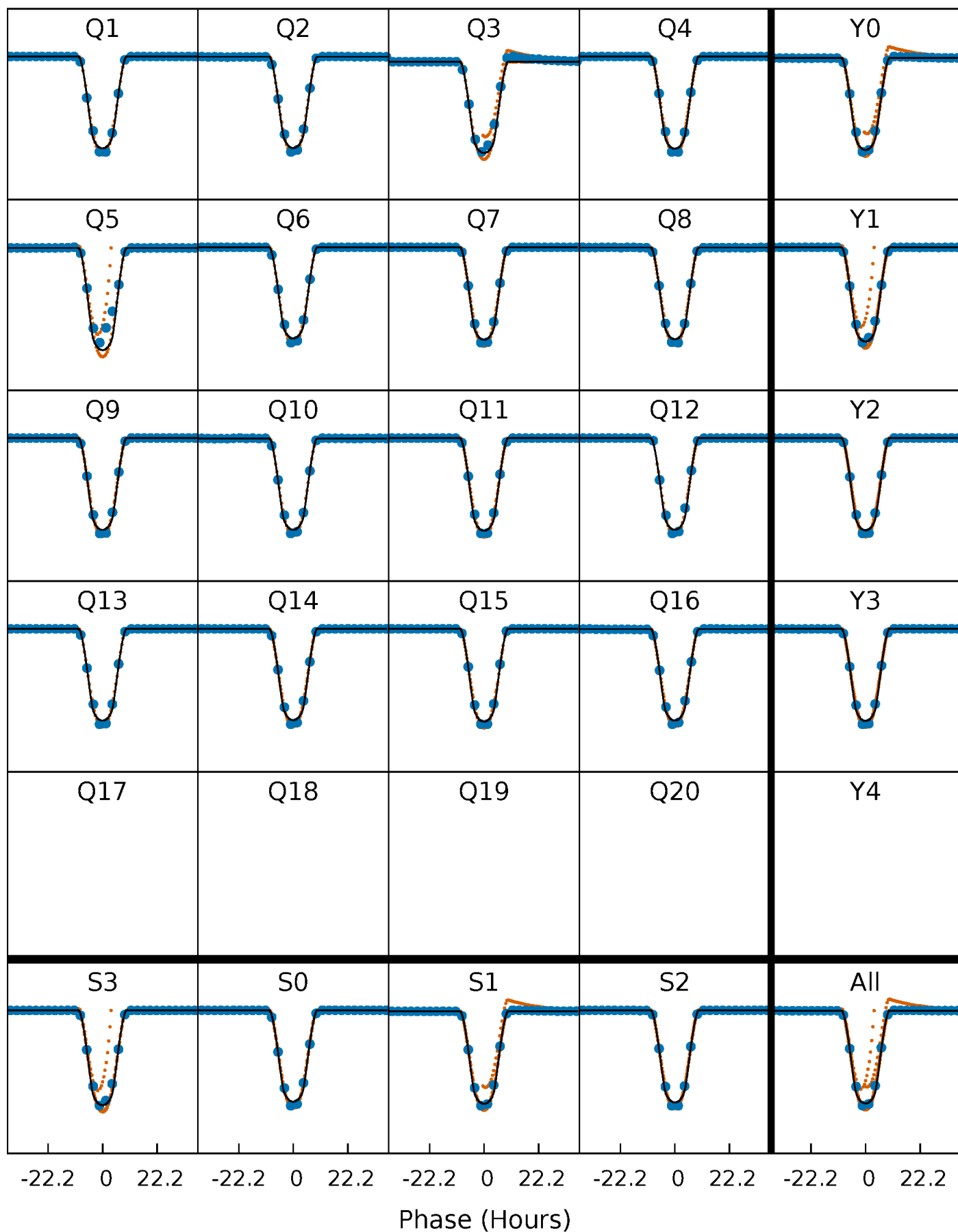
TCE 008129189-01 P= 53.647086 Days  $T_0=152.972022$  (BKJD)





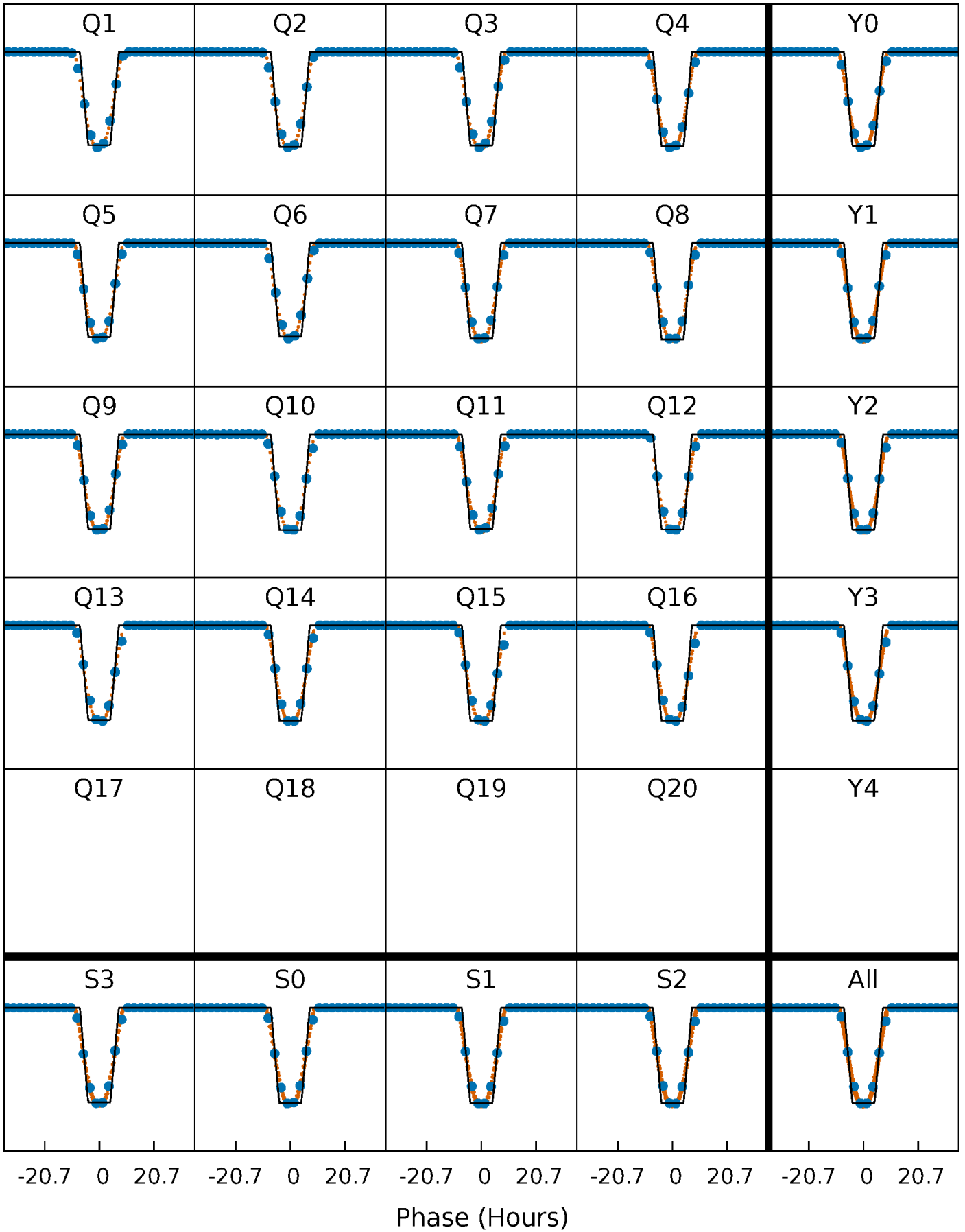
# DV Quarter-Phased Transit Curves

TCE 008129189-01 P= 53.647086 Days  $T_0=152.972022$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

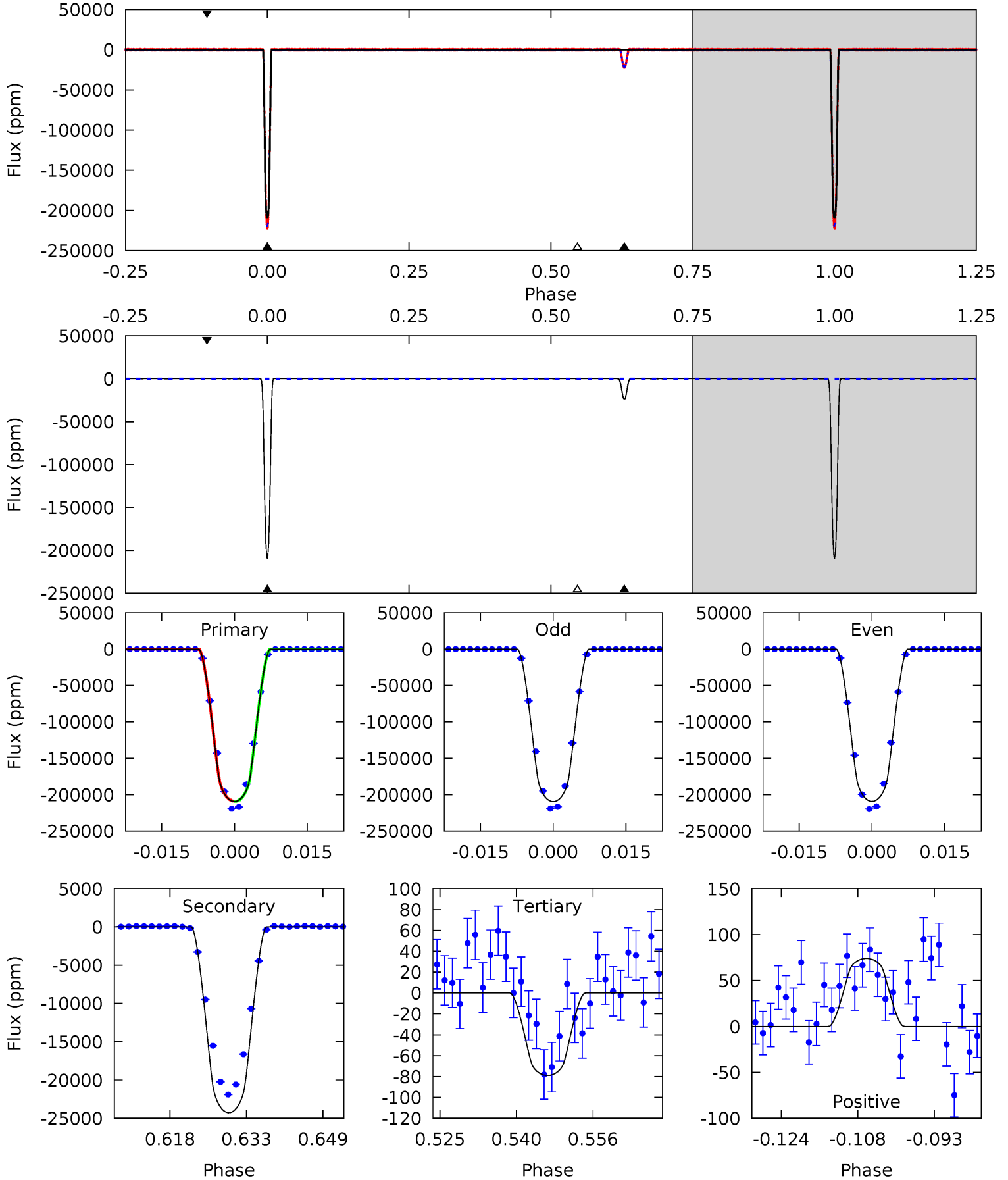
TCE 008129189-01 P= 53.646108 Days  $T_0=152.984401$  (BKJD)



# DV Model-Shift Uniqueness Test

008129189-01, P = 53.647086 Days, E = 99.324936 Days

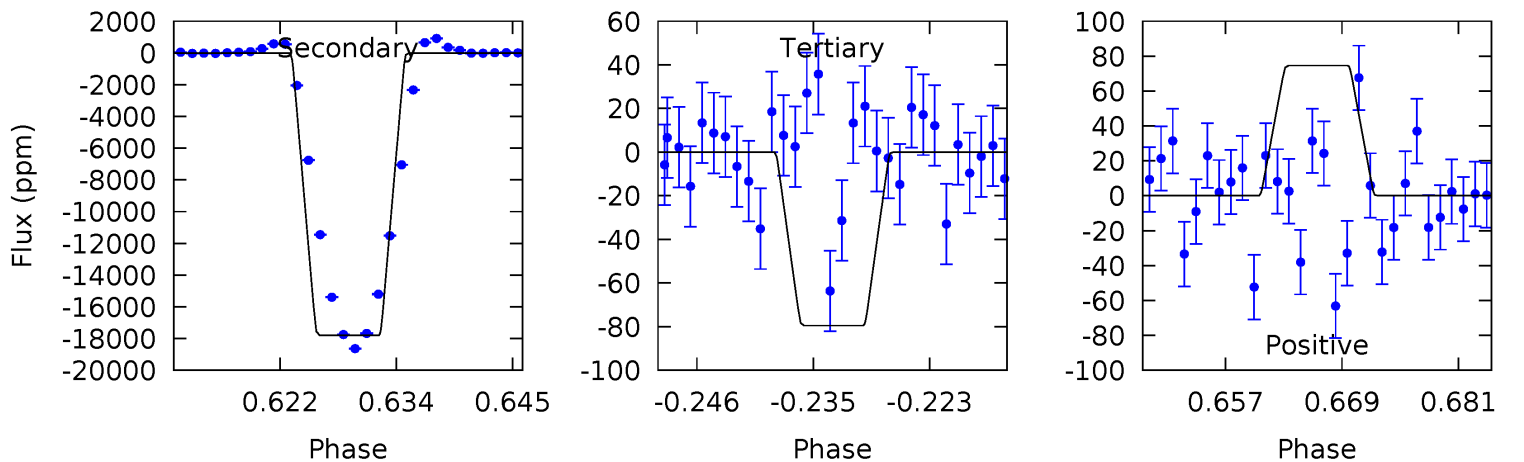
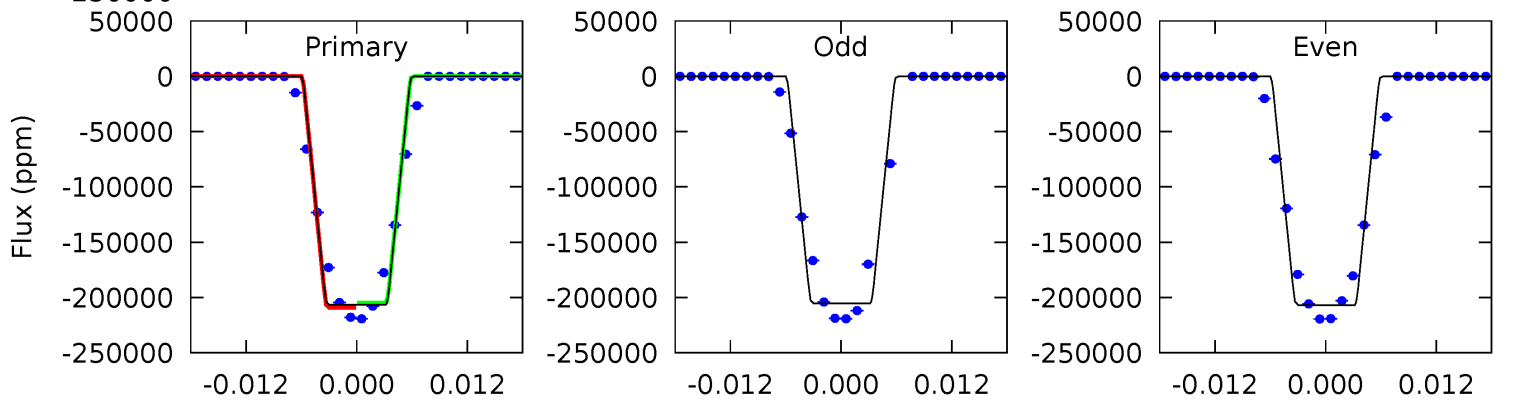
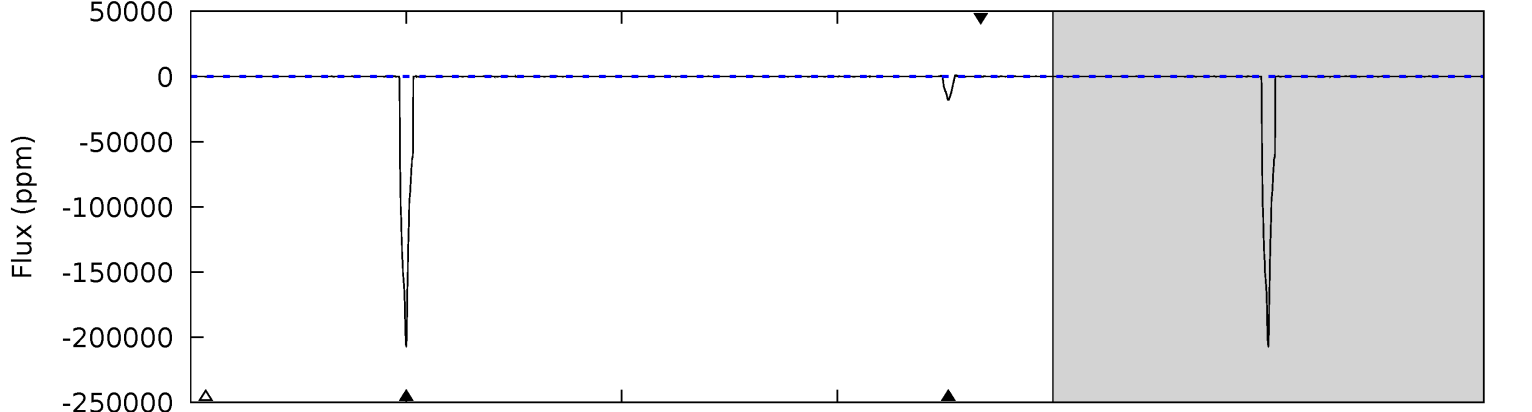
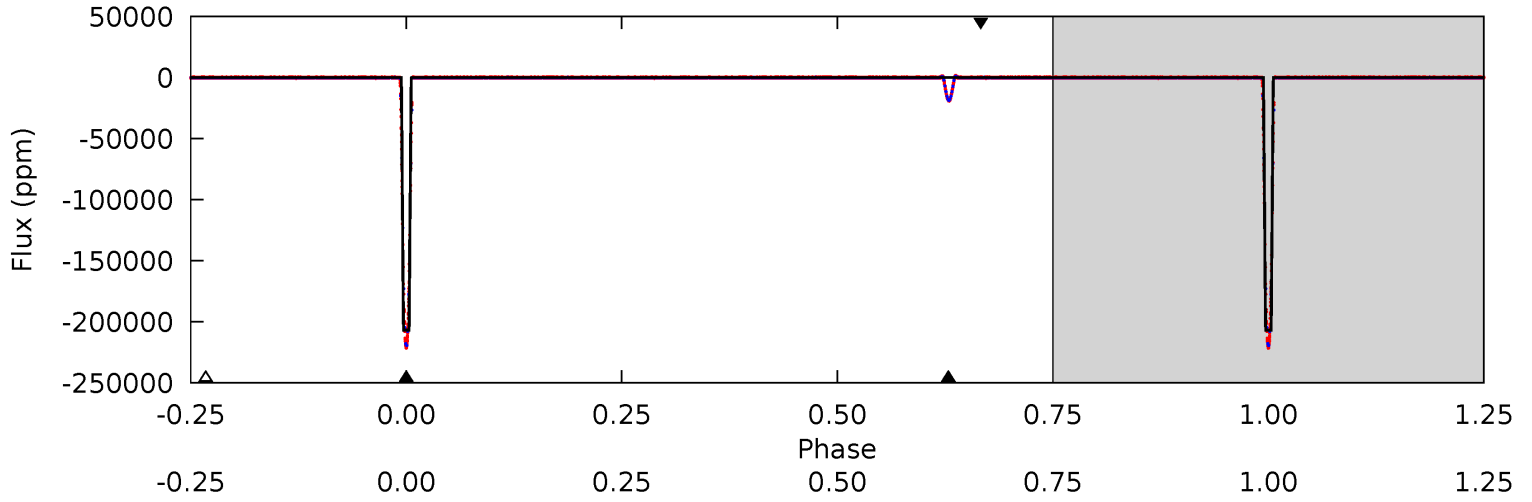
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23428	2717	8.84	8.28	4.94	2.42	3.81	23419	23420	2708	2709	15.9	0.98	0.00	0



# Alt Model-Shift Uniqueness Test

008129189-01, P = 53.646108 Days, E = 99.338293 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12532	1080	4.82	4.52	5.00	2.52	1.36	12528	12528	1075	1075	47.5	1.01	0.00	0



### Stellar Parameters For KIC 008129189

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5261^{+118}_{-118}$	$3.506^{+0.153}_{-0.187}$	$-0.620^{+0.250}_{-0.250}$	$2.943^{+0.818}_{-0.545}$	$1.013^{+0.227}_{-0.140}$	$0.056^{+0.041}_{-0.027}$
	+2%/-2%	+4%/-5%	+40%/-40%	+28%/-19%	+22%/-14%	+73%/-49%
Source	PHO1	FLK73	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 008129189-01 / KOI 6975.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-24271 \pm 9$	$133.91^{+21.84}_{-14.59}$	$1056^{+75}_{-61}$	$3641^{+61}_{-59}$	$59^{+13}_{-14}$
Alt.	$-17804 \pm 16$	$150.53^{+24.46}_{-16.65}$	$1057^{+76}_{-60}$	$3344^{+58}_{-54}$	$35^{+9}_{-8}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

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

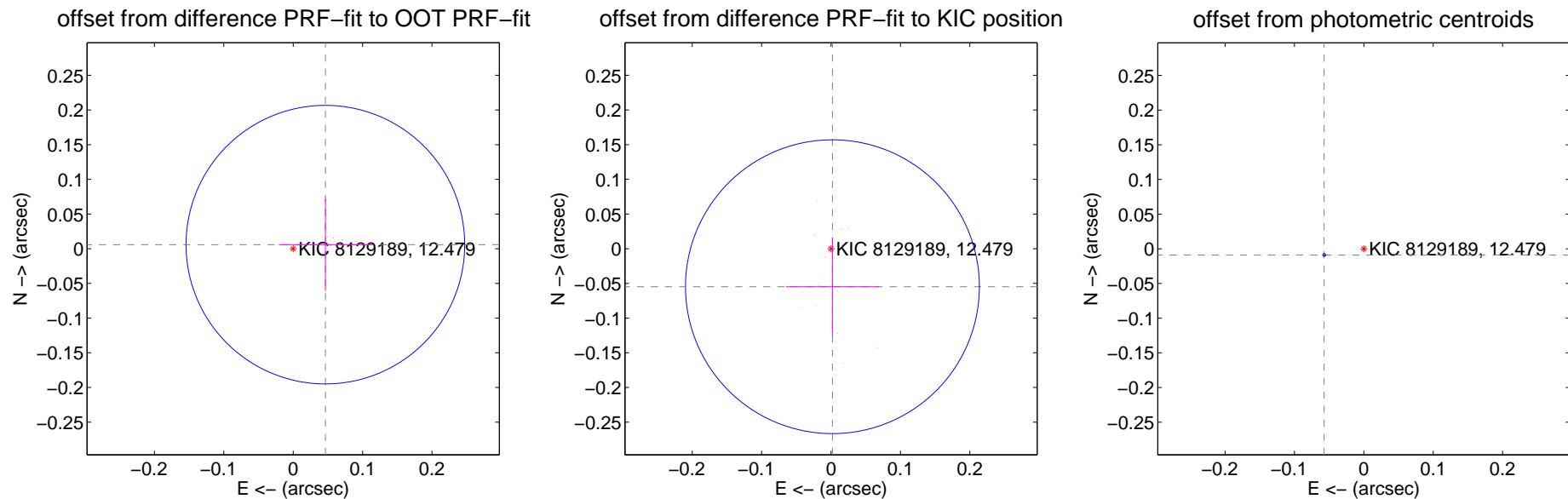
## DV Centroid Data

Supplemental centroid analysis for 008129189-01. Kepler magnitude: 12.48. Transit SNR 3949.04

There are 14 quarters with good PRF difference image offsets

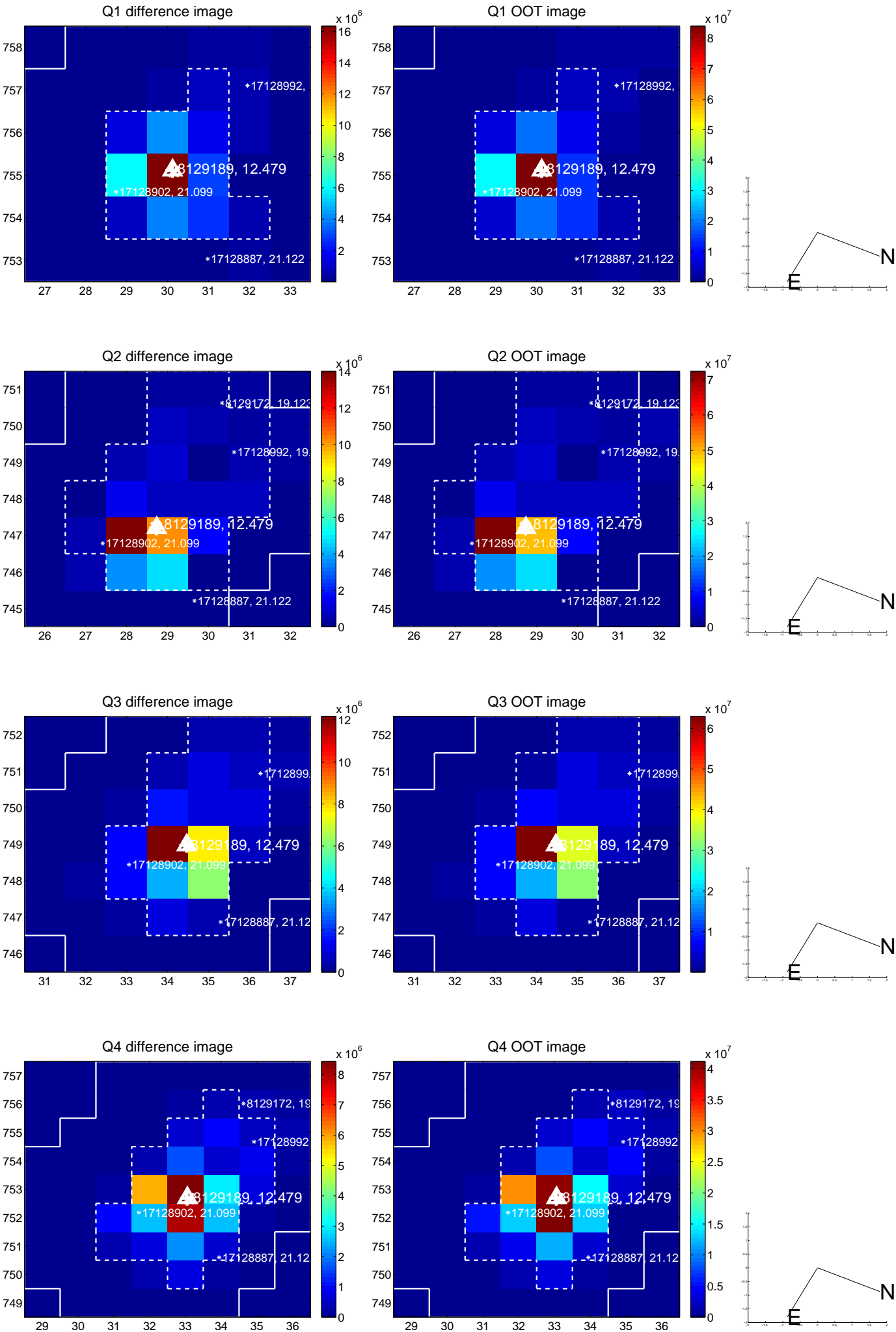
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.047 \pm 0.067$	0.70	$-0.046 \pm 0.067$	$0.006 \pm 0.067$
PRF-fit source offset from KIC position	$0.055 \pm 0.071$	0.78	$-0.002 \pm 0.067$	$-0.055 \pm 0.071$
photometric centroid source offset	$0.06 \pm 0.00$	87.29	$0.06 \pm 0.00$	$-0.01 \pm 0.00$

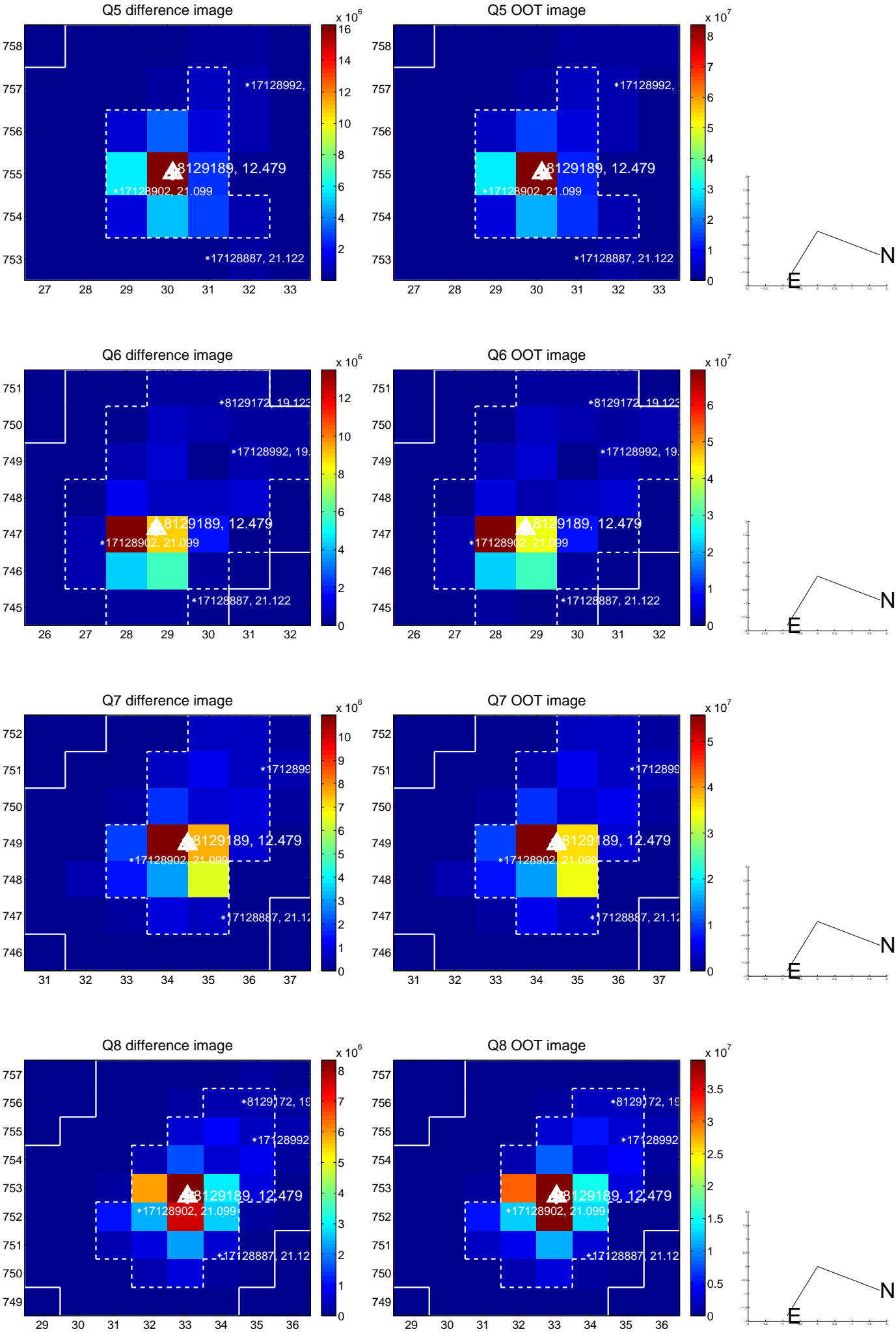


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

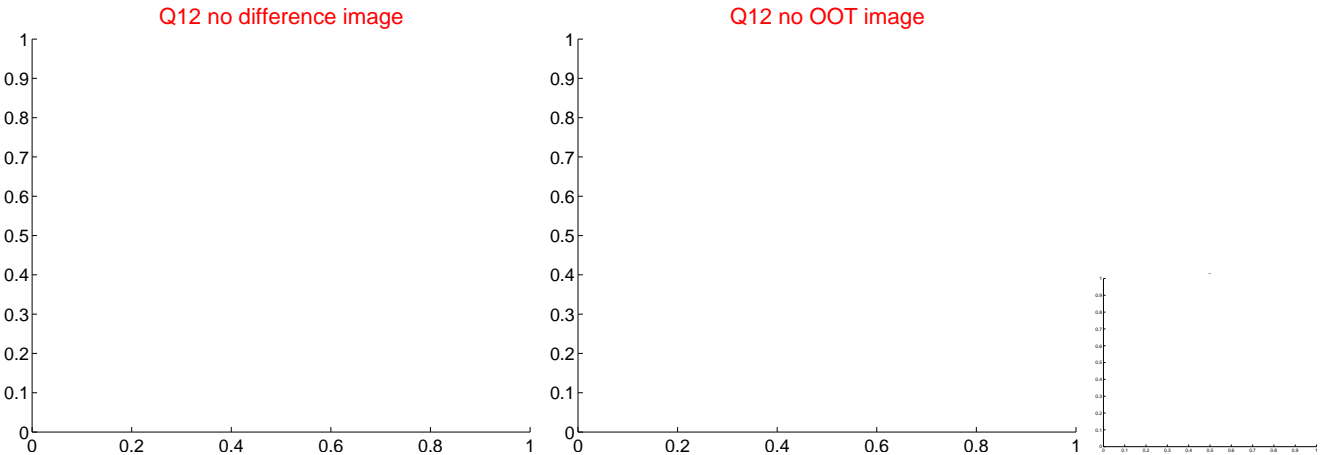
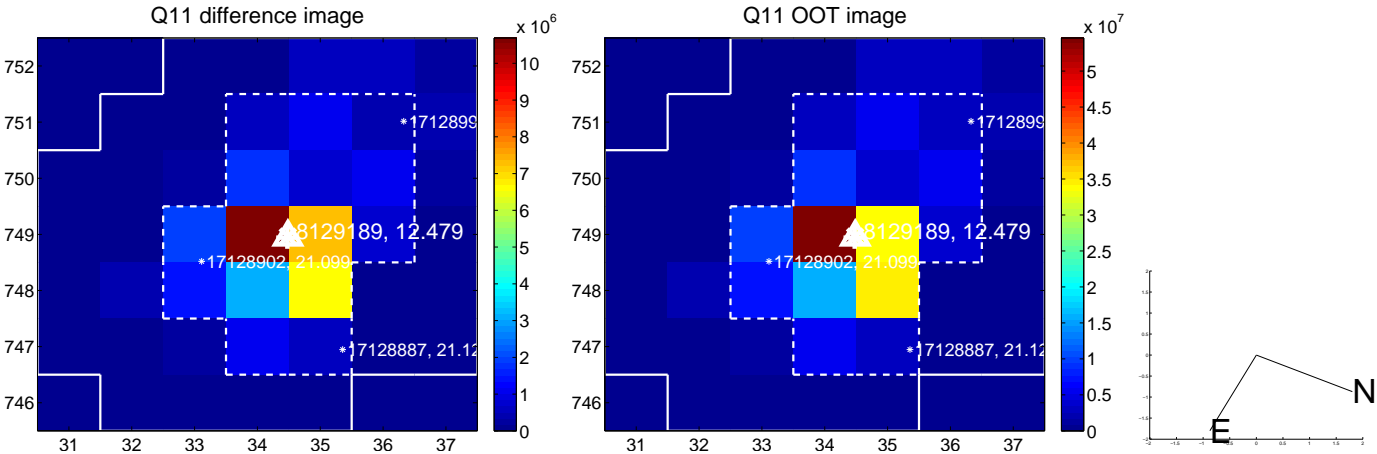
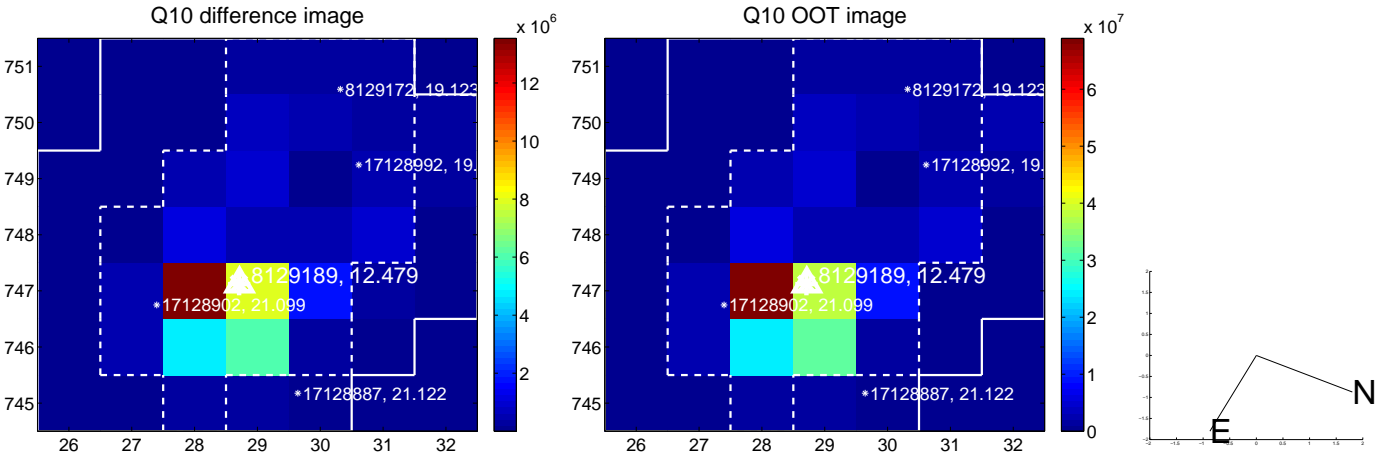
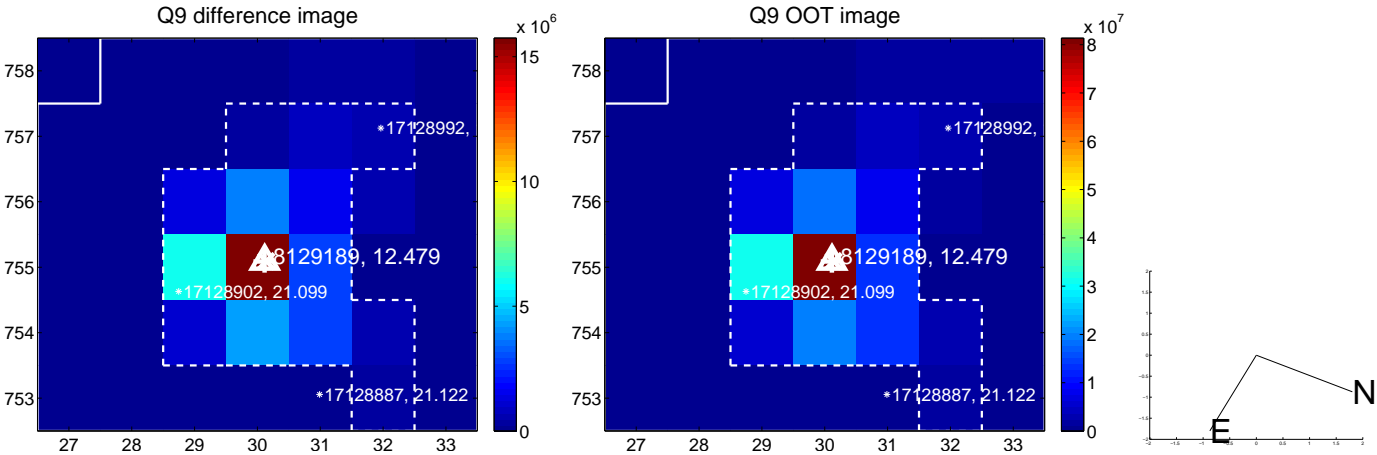


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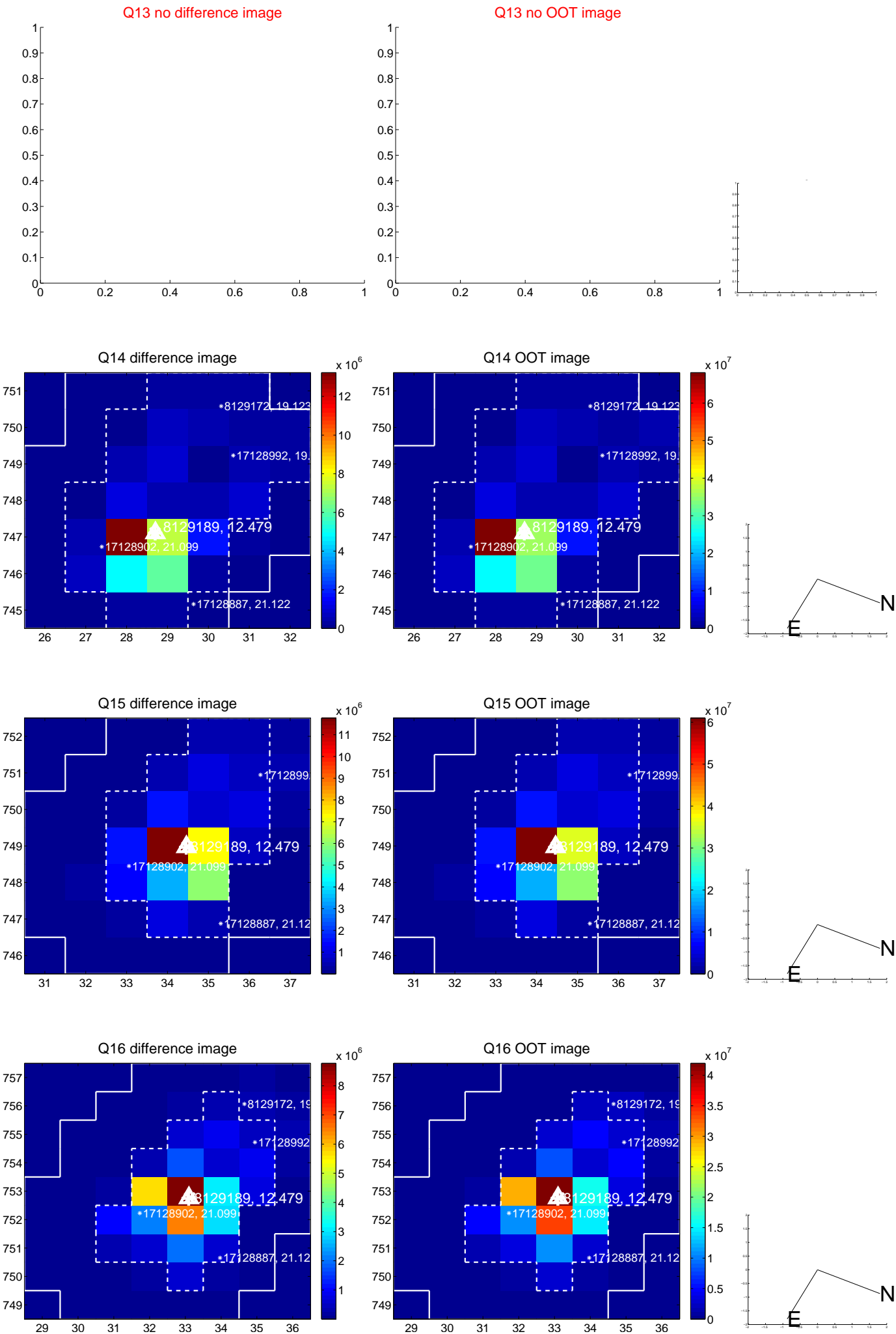




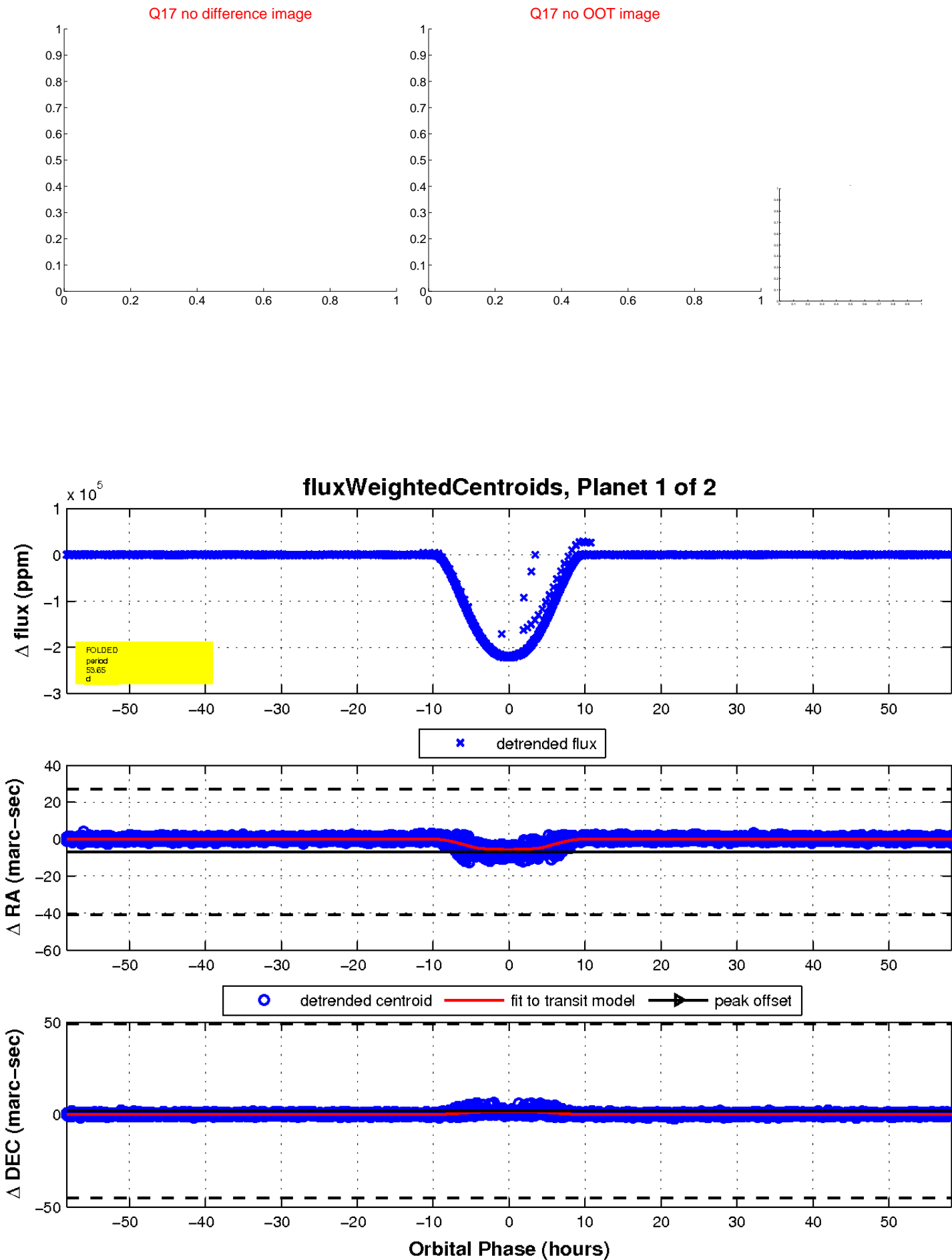
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

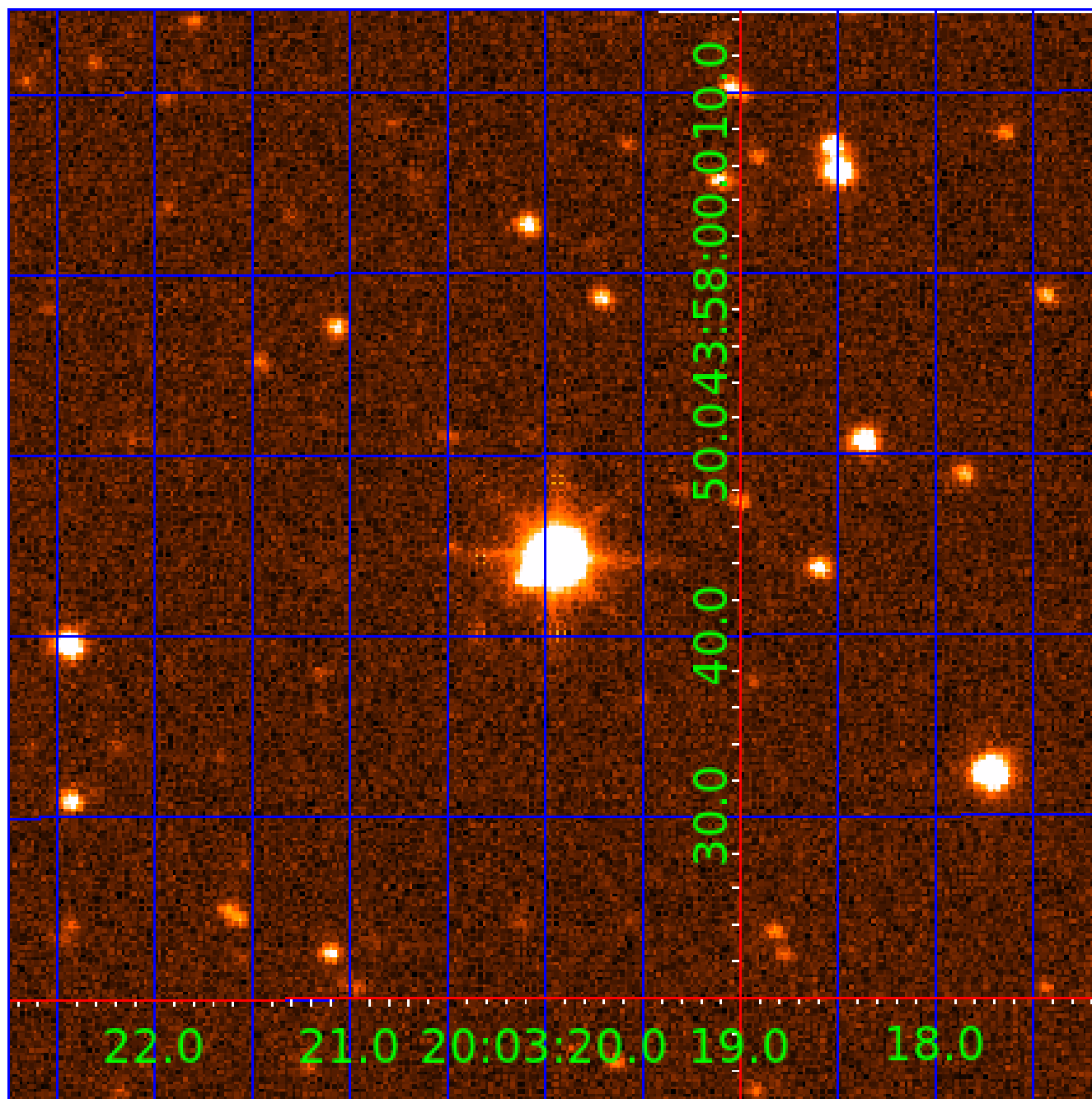


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008129189

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008129189-01	OBS	6975.01	53.647086	152.972022	208222.1	19.423	11994.6	3949.0	2.94	5261	133.62	76.03
008129189-02	OBS	No	53.647017	133.100513	22048.5	19.787	1284.4	1304.3	2.94	5261	77.05	76.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008129189-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—HAS_SEC_TCE
008129189-02	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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008129189-02

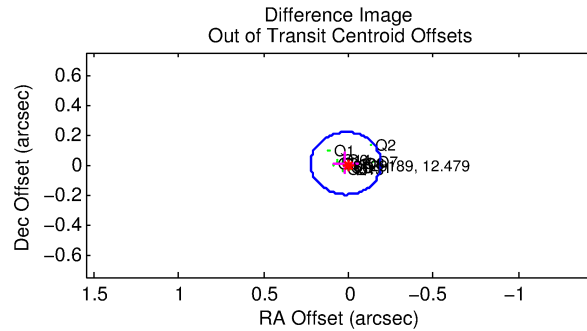
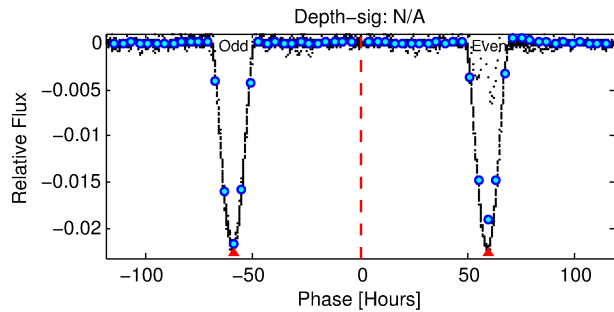
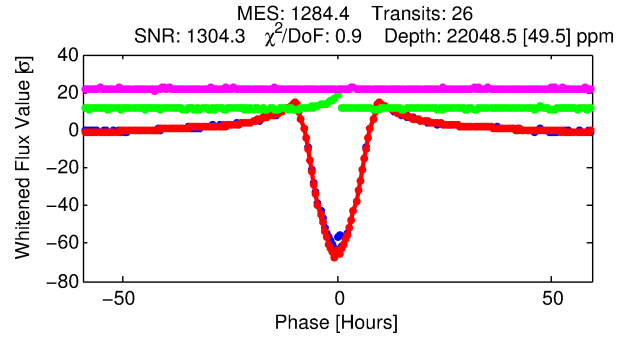
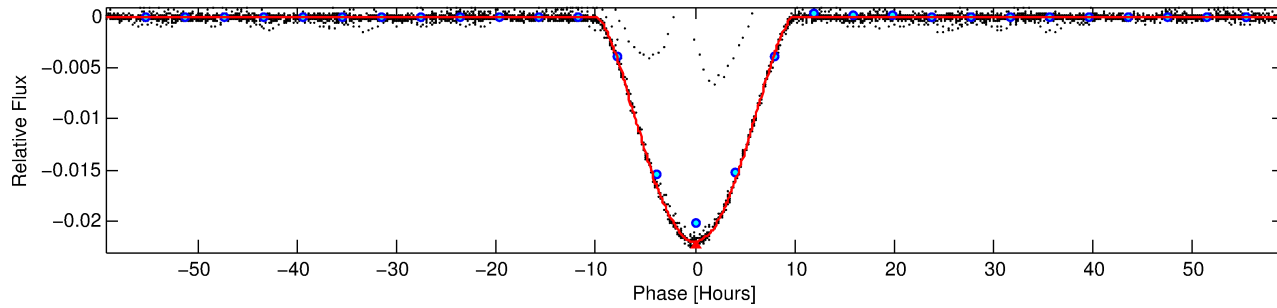
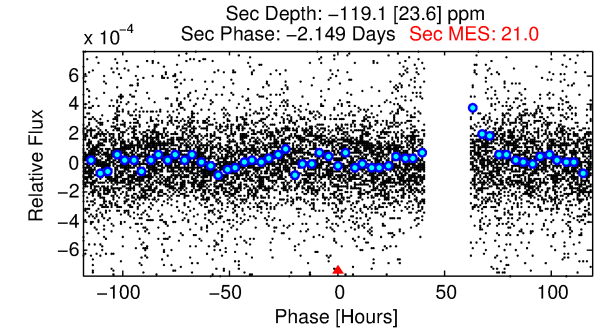
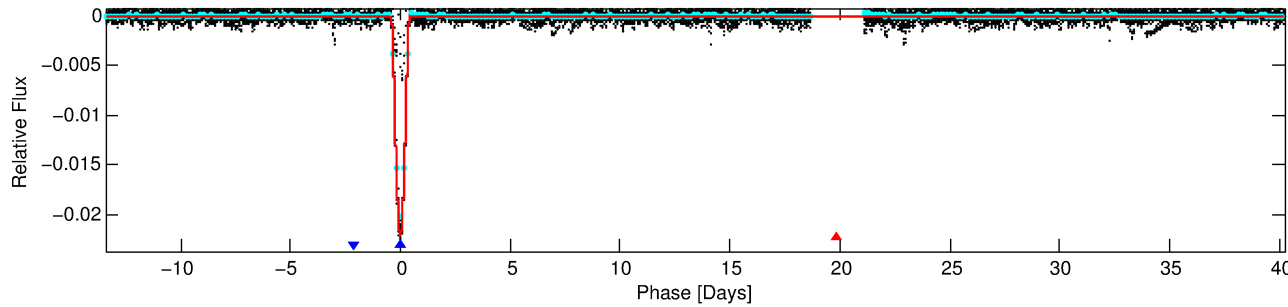
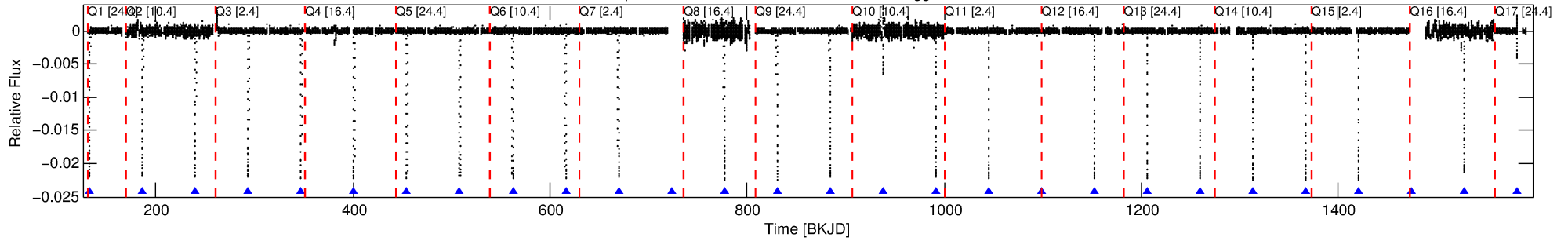
No Significant Match Found

# DV One-Page Summary

KIC: 8129189 Candidate: 2 of 2 Period: 53.647 d

KOI: K06975 Corr: No Ephemeris Match

Kp: 12.48 R\*: 2.94 Rs Teff: 5261.0 K Logg: 3.51 Fe/H: -0.620



## DV Fit Results:

Period = 53.64702 [0.00002] d  
Epoch = 133.1005 [0.0003] BKJD  
Rp/R\* = 0.2399 [0.0102]  
a/R\* = 15.26 [0.05]  
b = 1.00 [0.01]  
Seff = 76.03 [26.86]  
Teff = 753 [66] K  
Rp = 77.05 [21.66] Re  
a = 0.2796 [0.0655] AU  
Ag = N/A  
Teffp = N/A

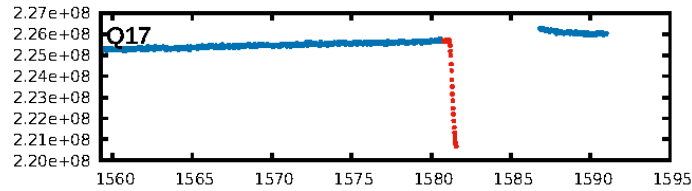
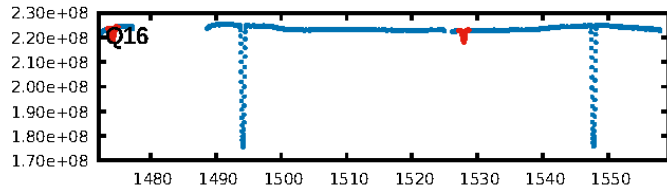
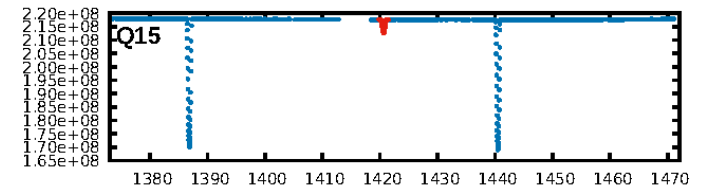
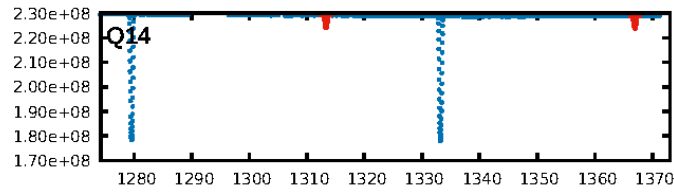
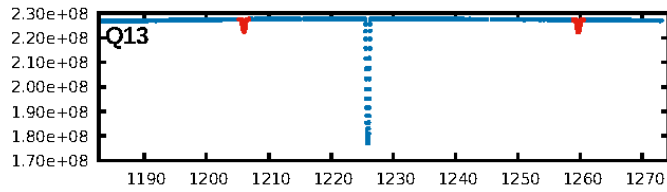
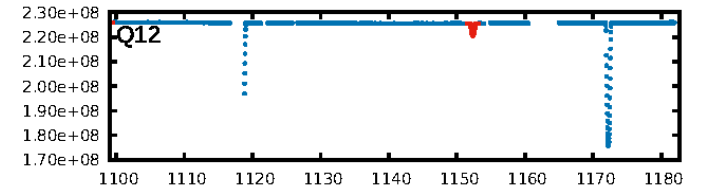
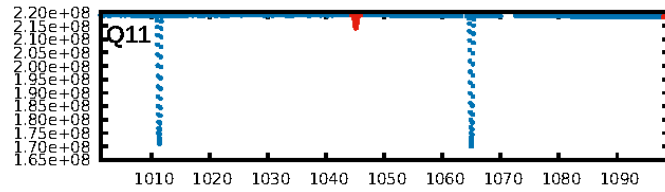
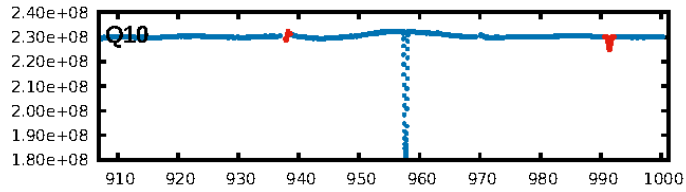
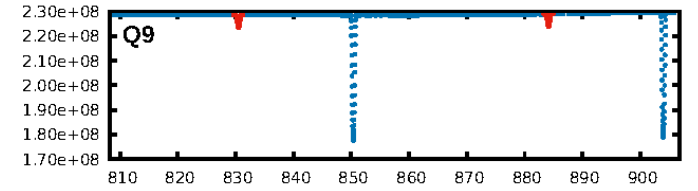
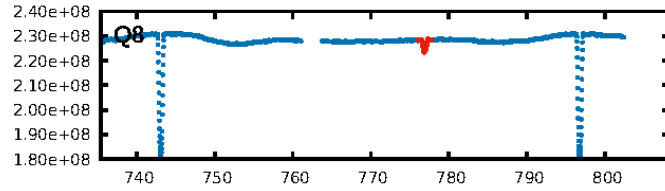
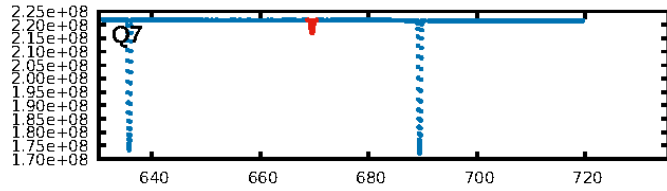
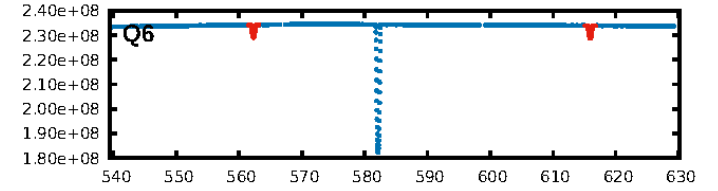
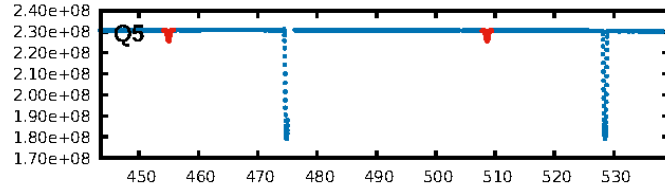
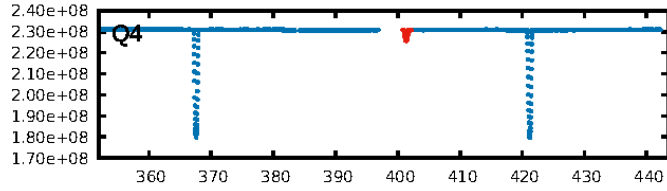
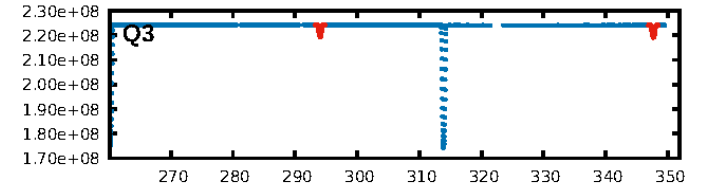
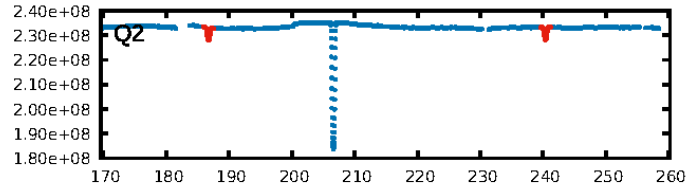
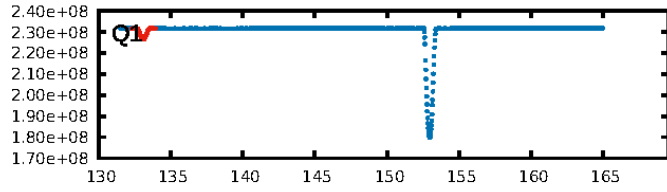
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-figt: 1.00 [24/24]  
GhostDiagnostic-chr: 5.744  
Centroid-sig: 0.0%  
Centroid-so: 0.124 arcsec [19.21σ]  
OotOffset-rm: 0.020 arcsec [0.28σ]  
KicOffset-rm: 0.034 arcsec [0.47σ]  
OotOffset-st: 4/3/2/4 [13]  
KicOffset-st: 4/3/2/4 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [13/13]

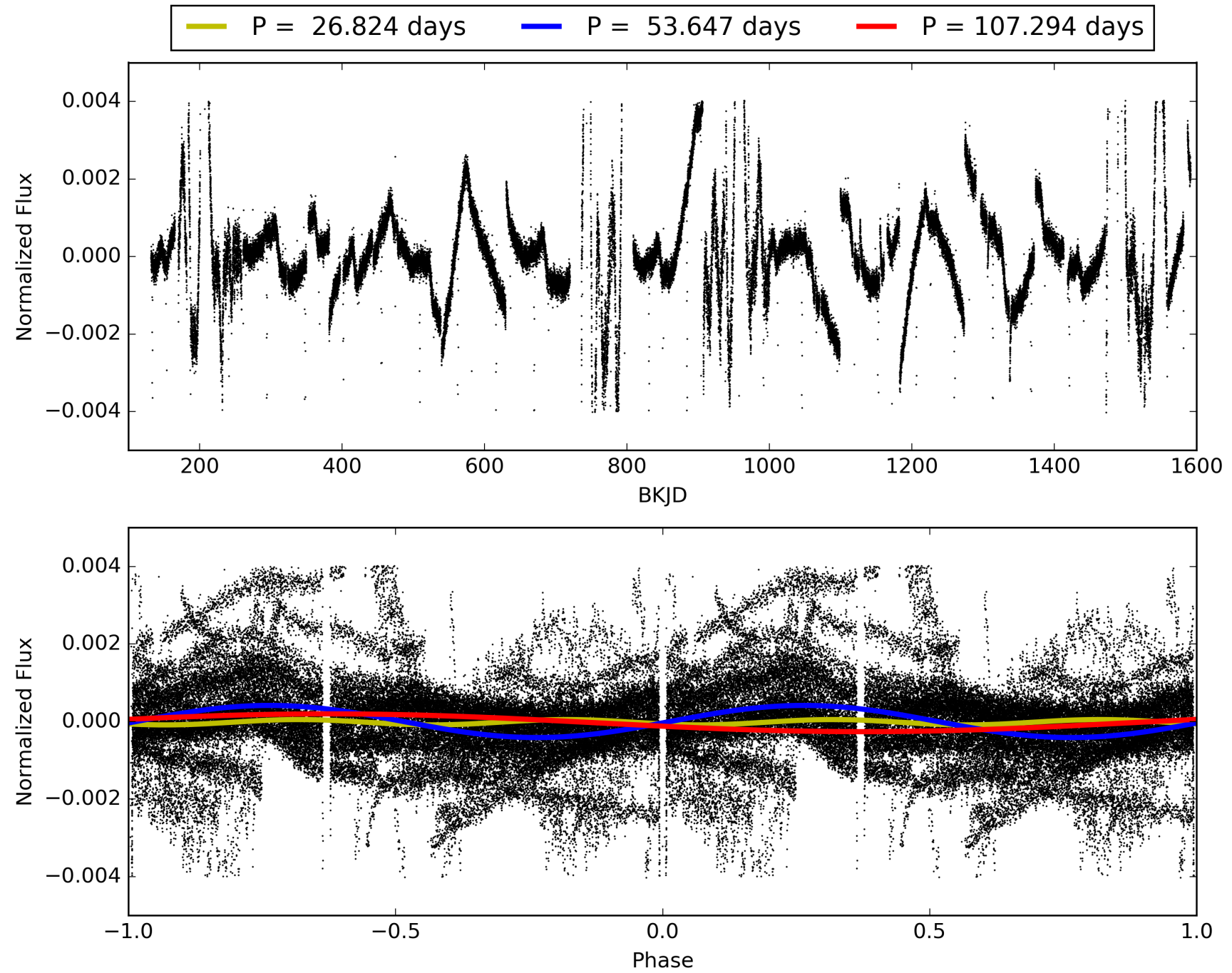
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:08:18 Z

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

# TCE 008129189-02, PDC Light Curves



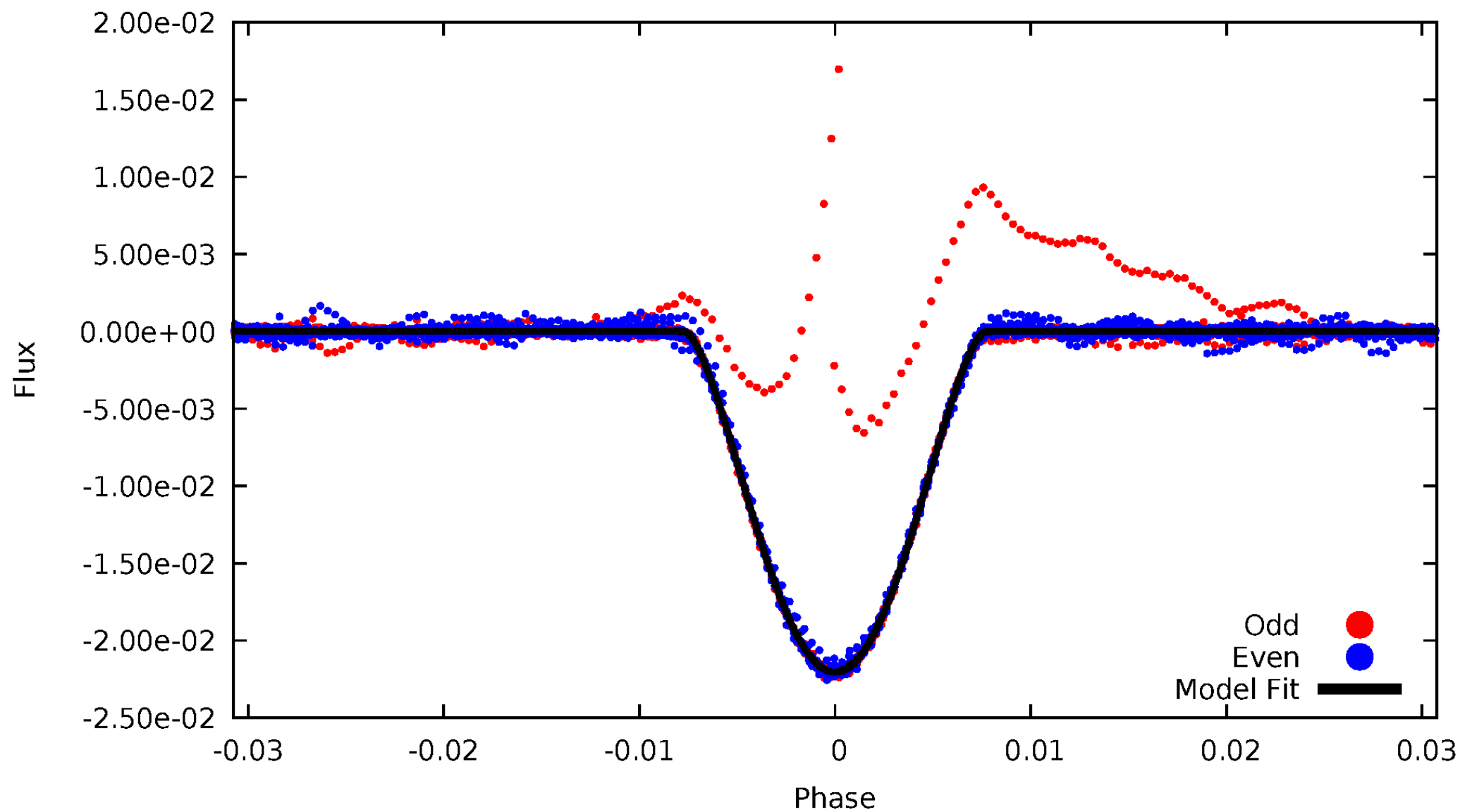
# TCE 008129189-02





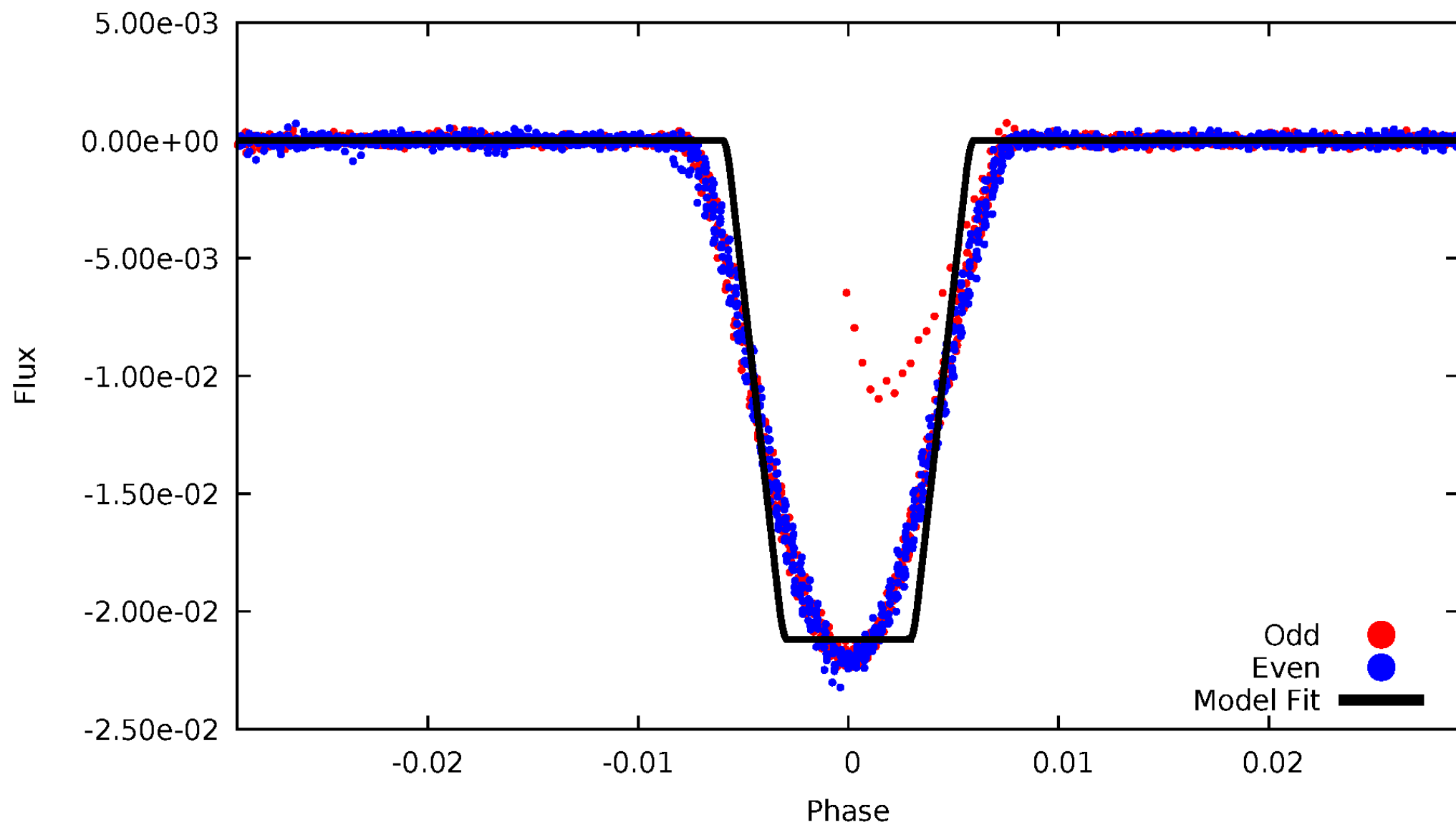
# DV Odd/Even

TCE 008129189-02



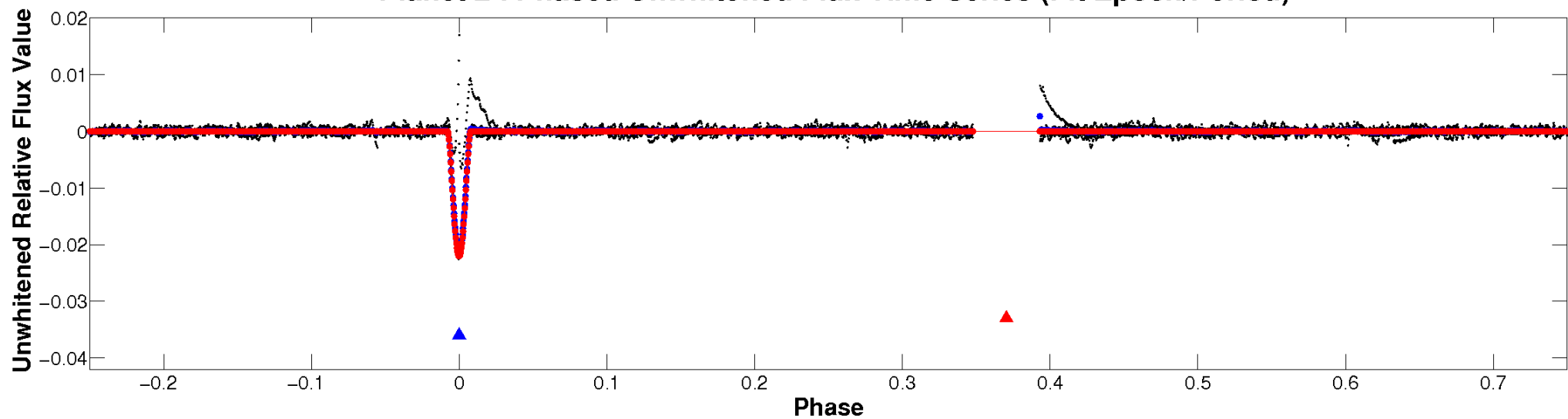
# ALT Odd/Even

TCE 008129189-02

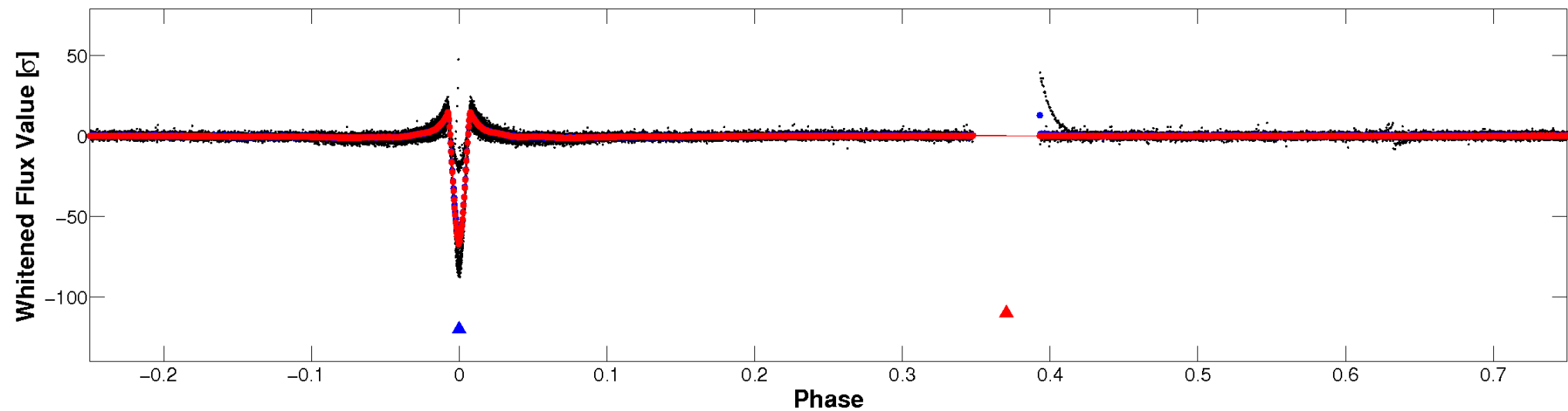


# Non-Whitened Vs. Whitened Light Curve

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

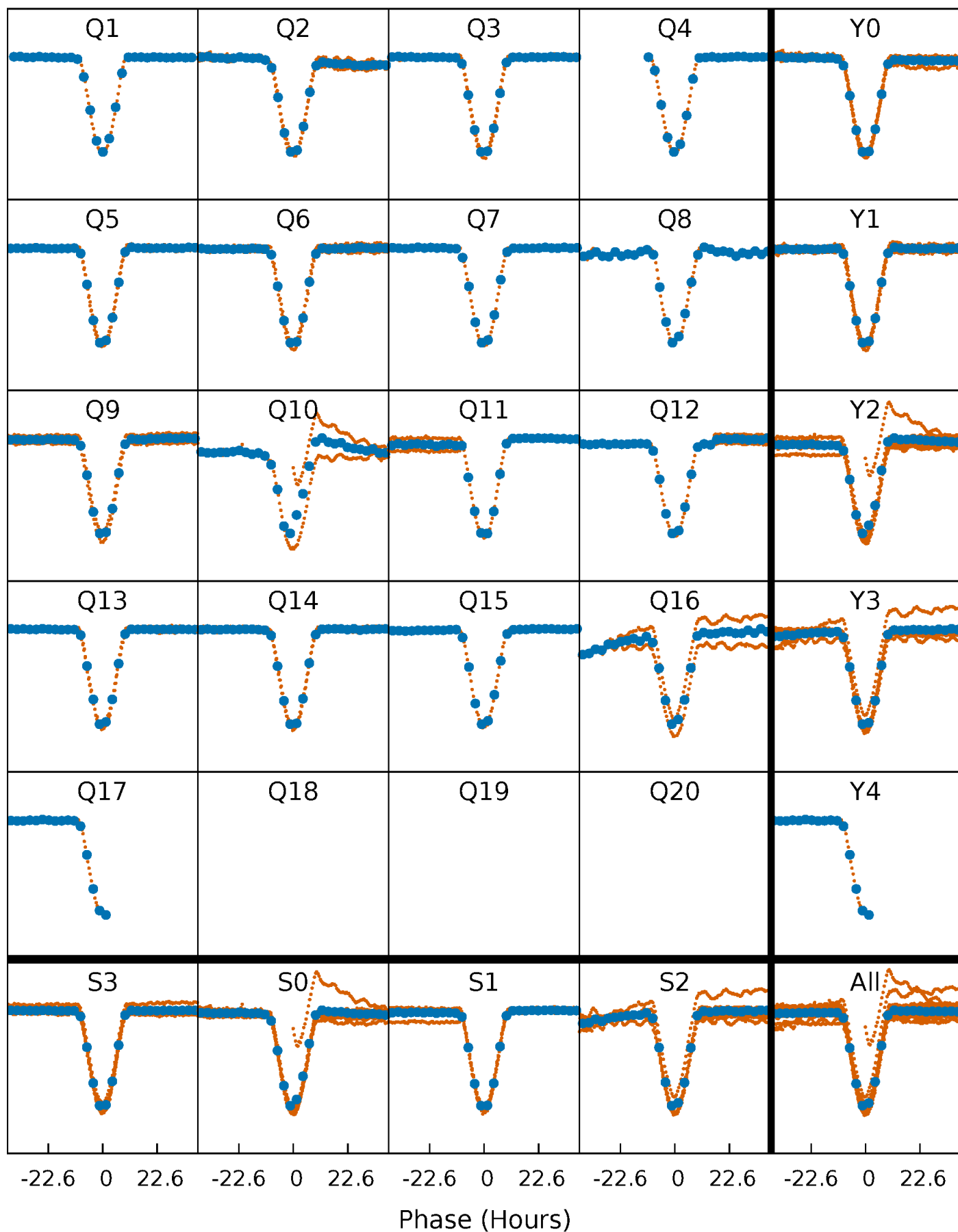


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



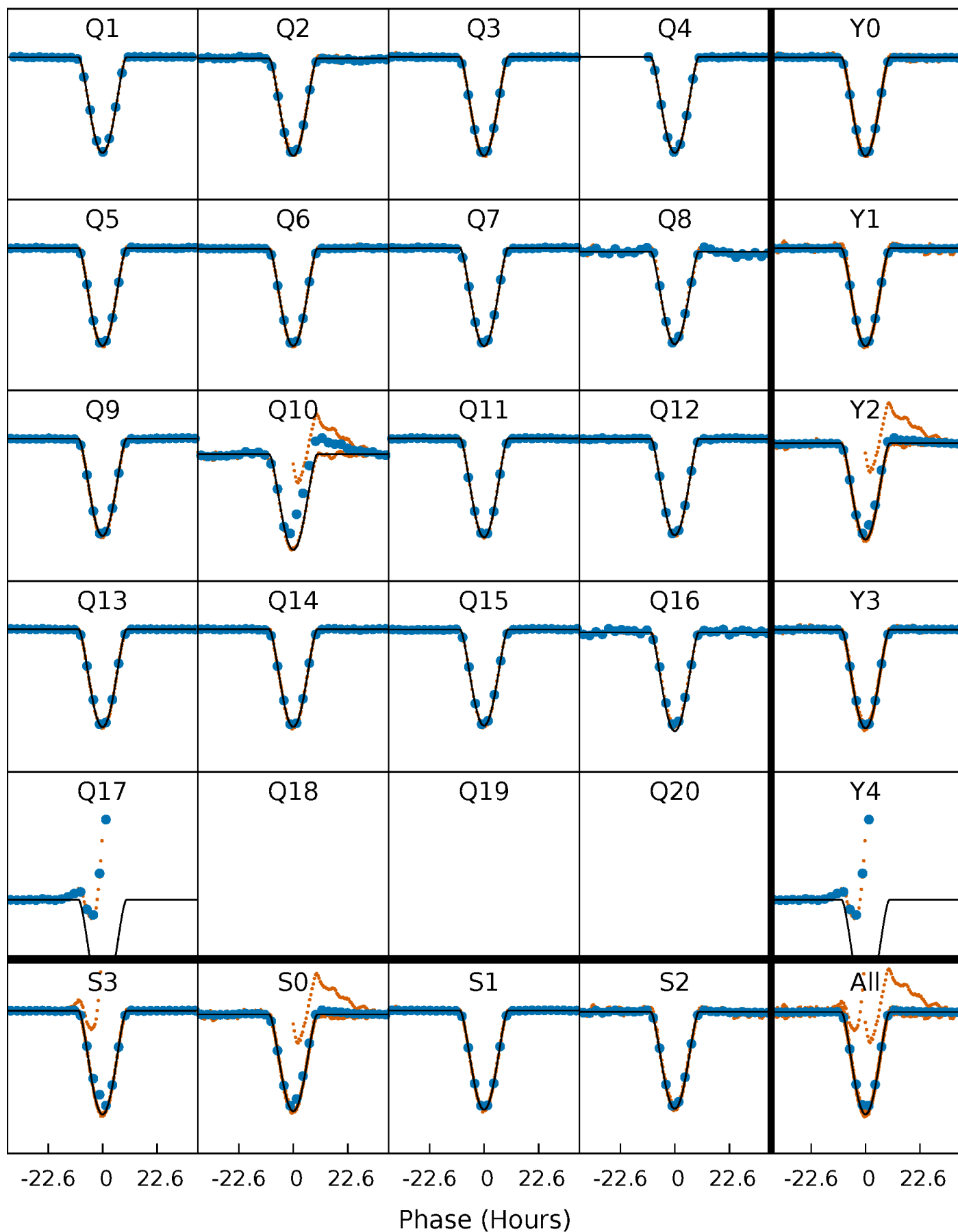
# PDC Quarter-Phased Transit Curves

TCE 008129189-02 P= 53.647017 Days  $T_0=133.100513$  (BKJD)



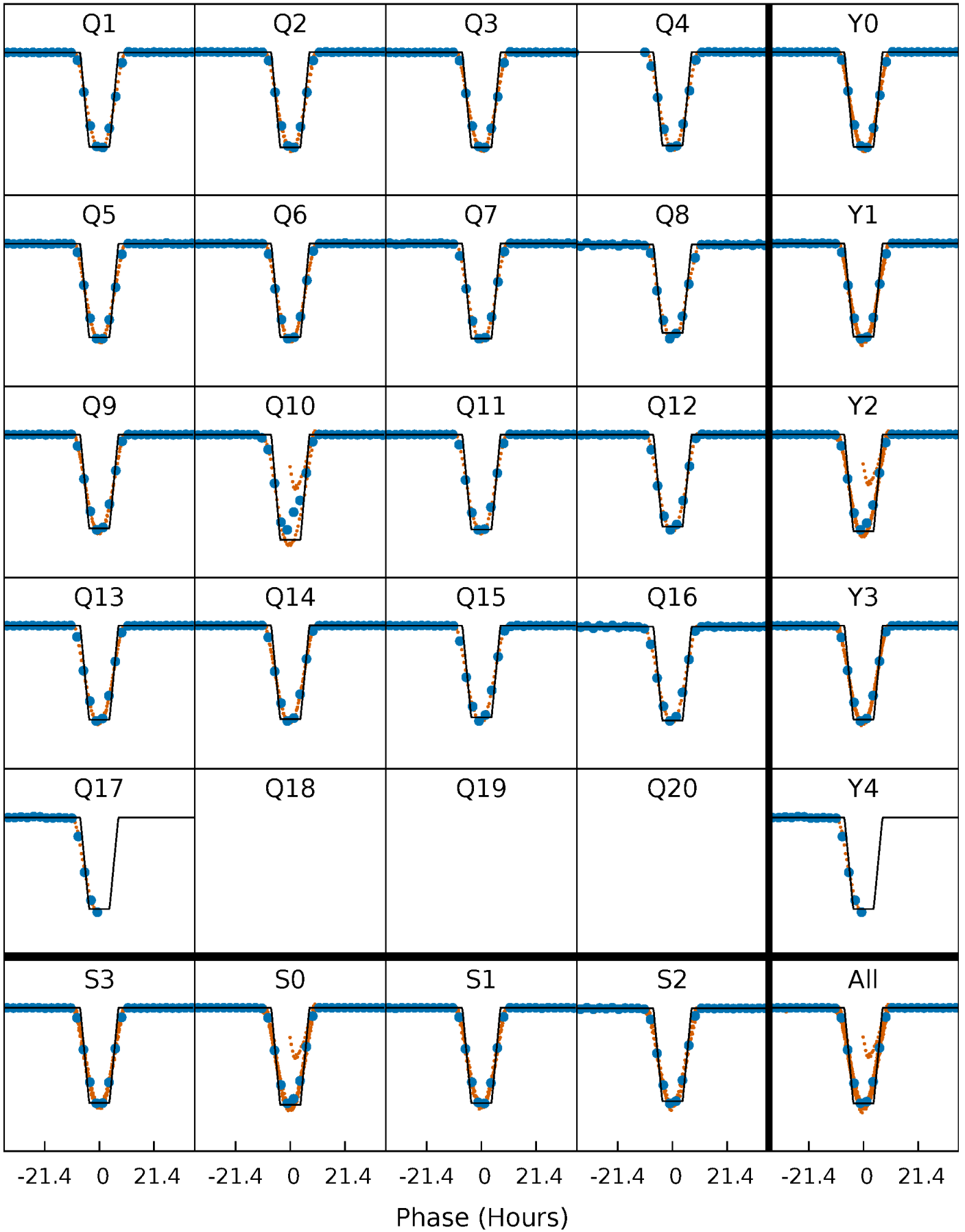
# DV Quarter-Phased Transit Curves

TCE 008129189-02   P= 53.647017 Days    $T_0=133.100513$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

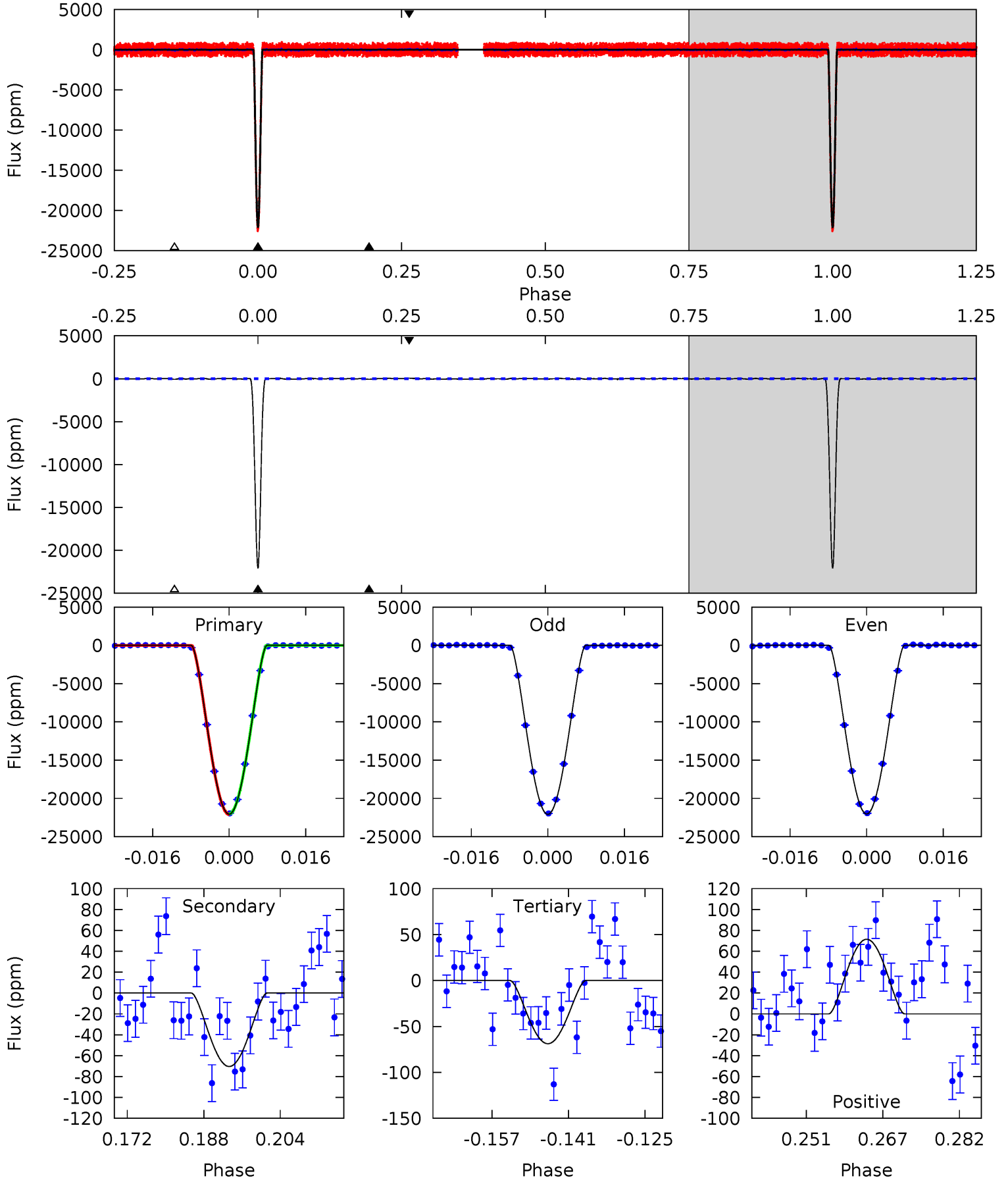
TCE 008129189-02 P= 53.648251 Days  $T_0=133.084406$  (BKJD)



# DV Model-Shift Uniqueness Test

008129189-02, P = 53.647017 Days, E = 79.453496 Days

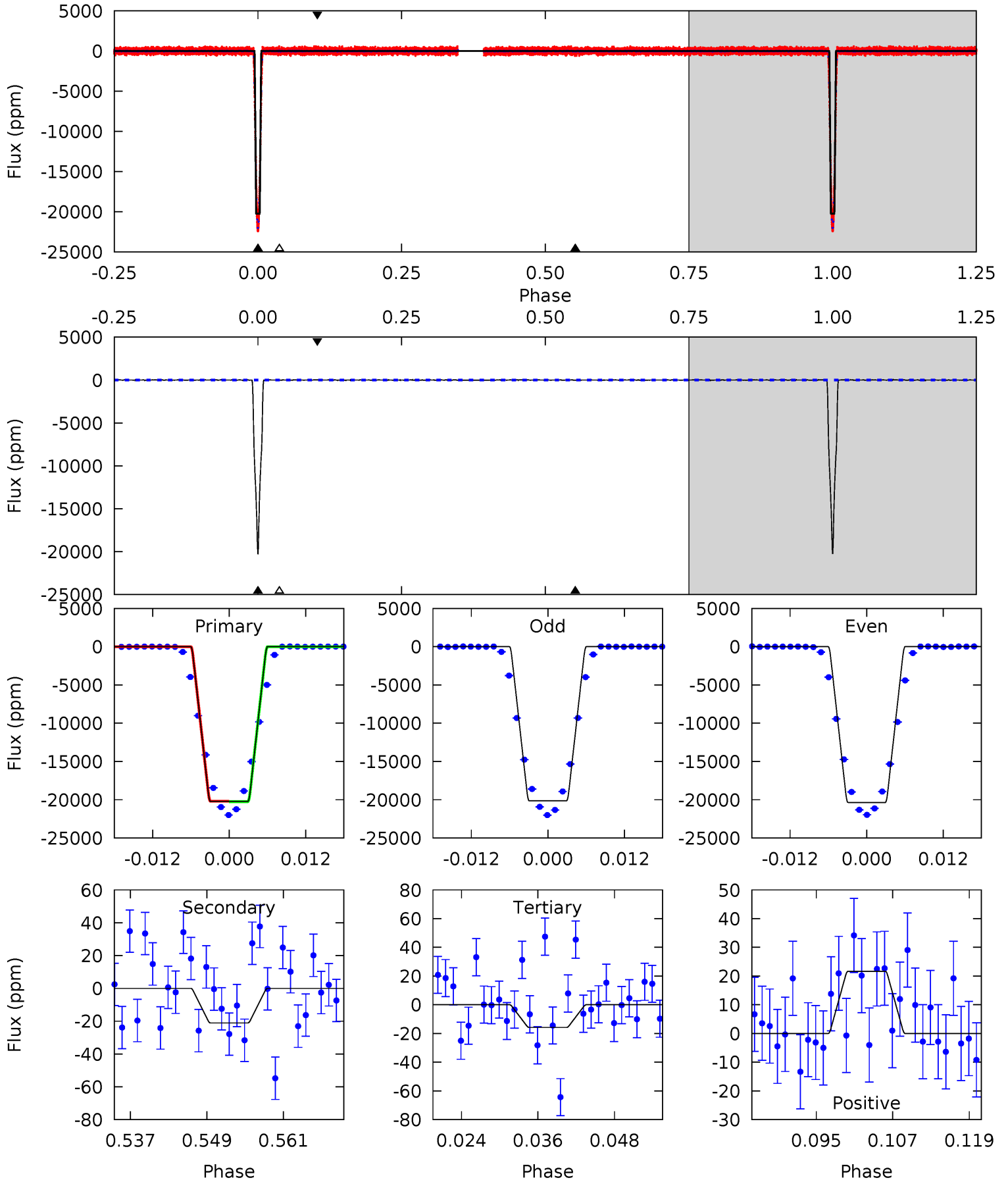
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2869	9.15	8.95	9.30	4.94	2.42	3.20	2860	2859	0.20	-0.14	3.76	0.92	0.00	4.34



# Alt Model-Shift Uniqueness Test

008129189-02, P = 53.648251 Days, E = 79.436155 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2984	3.11	2.33	3.19	4.99	2.51	0.76	2982	2981	0.78	-0.08	15.7	0.98	0.00	3.36





### Stellar Parameters For KIC 008129189

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5261^{+118}_{-118}$	$3.506^{+0.153}_{-0.187}$	$-0.620^{+0.250}_{-0.250}$	$2.943^{+0.818}_{-0.545}$	$1.013^{+0.227}_{-0.140}$	$0.056^{+0.041}_{-0.027}$
	+2%/-2%	+4%/-5%	+40%/-40%	+28%/-19%	+22%/-14%	+73%/-49%
Source	PHO1	FLK73	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 008129189-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-70 \pm 8$	$78.42^{+14.39}_{-10.00}$	$1062^{+79}_{-65}$	$1809^{+75}_{-135}$	$0.499^{+0.152}_{-0.134}$
Alt.	$-21 \pm 7$	$47.31^{+7.97}_{-6.47}$	$1054^{+70}_{-62}$	$1708^{+156}_{-3335}$	$0.410^{+0.181}_{-0.162}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

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

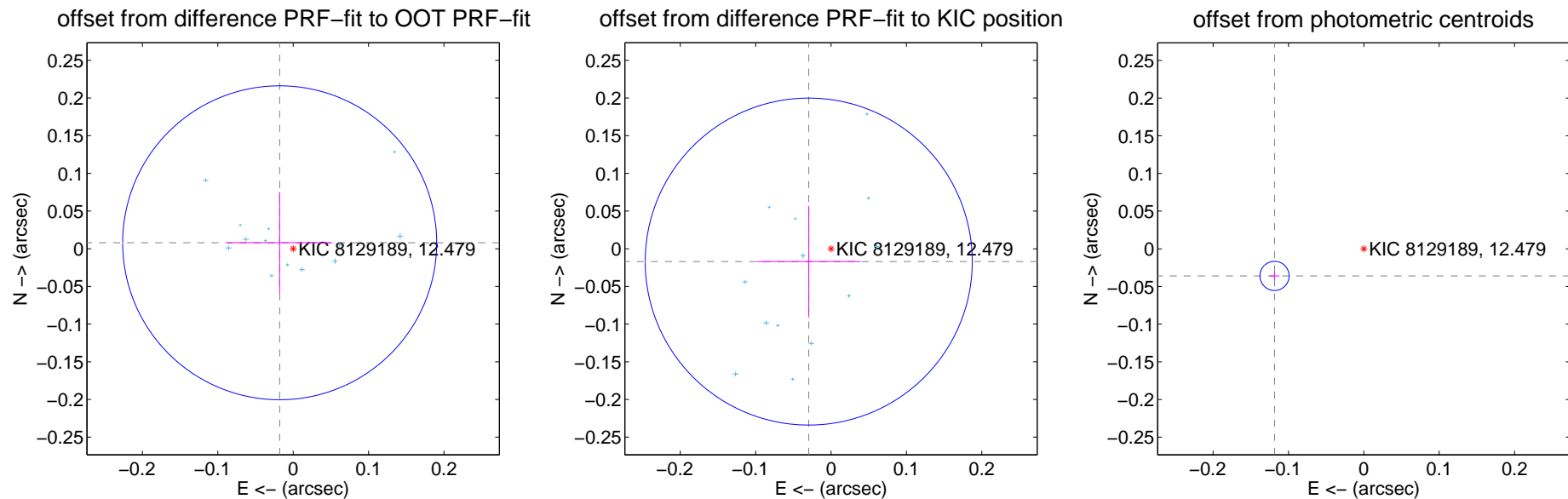
## DV Centroid Data

Supplemental centroid analysis for 008129189-02. Kepler magnitude: 12.48. Transit SNR 1304.34

There are 13 quarters with good PRF difference image offsets

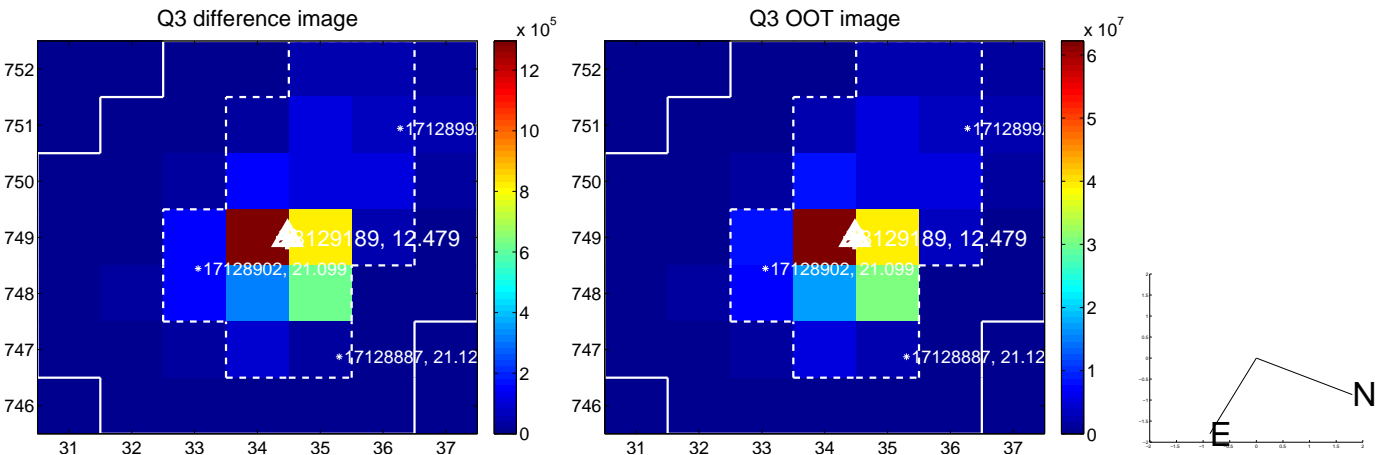
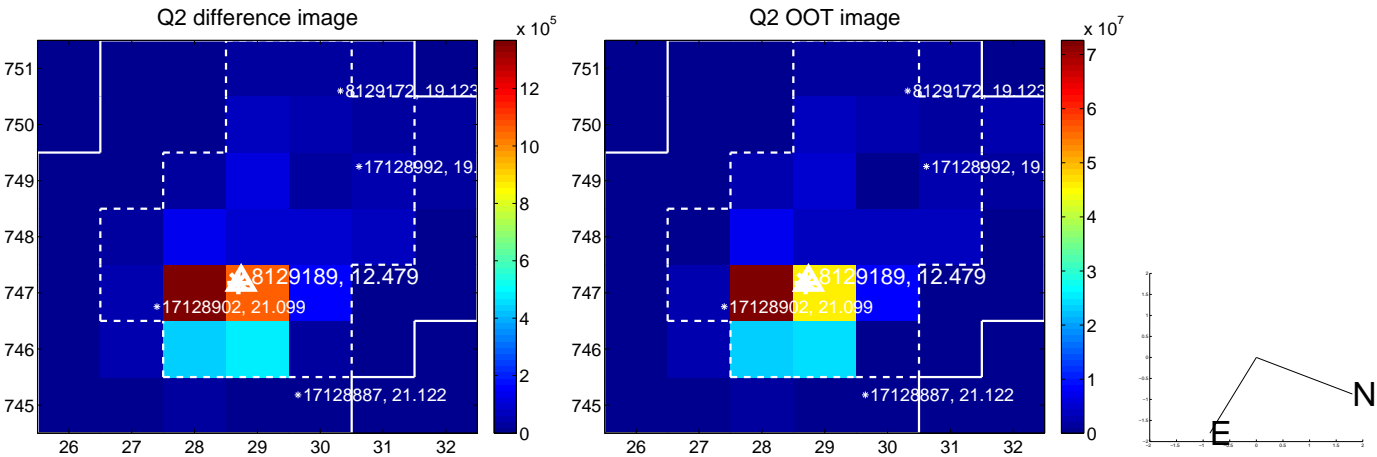
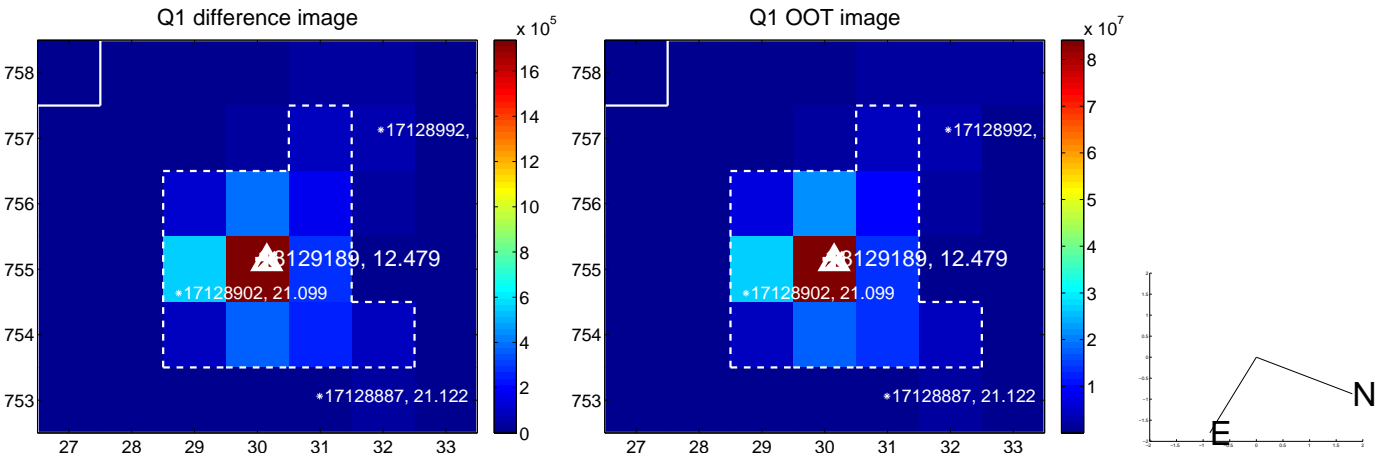
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.020 \pm 0.069$	0.28	$0.018 \pm 0.070$	$0.008 \pm 0.068$
PRF-fit source offset from KIC position	$0.034 \pm 0.072$	0.47	$0.030 \pm 0.069$	$-0.017 \pm 0.074$
photometric centroid source offset	$0.12 \pm 0.01$	19.21	$0.12 \pm 0.01$	$-0.04 \pm 0.01$

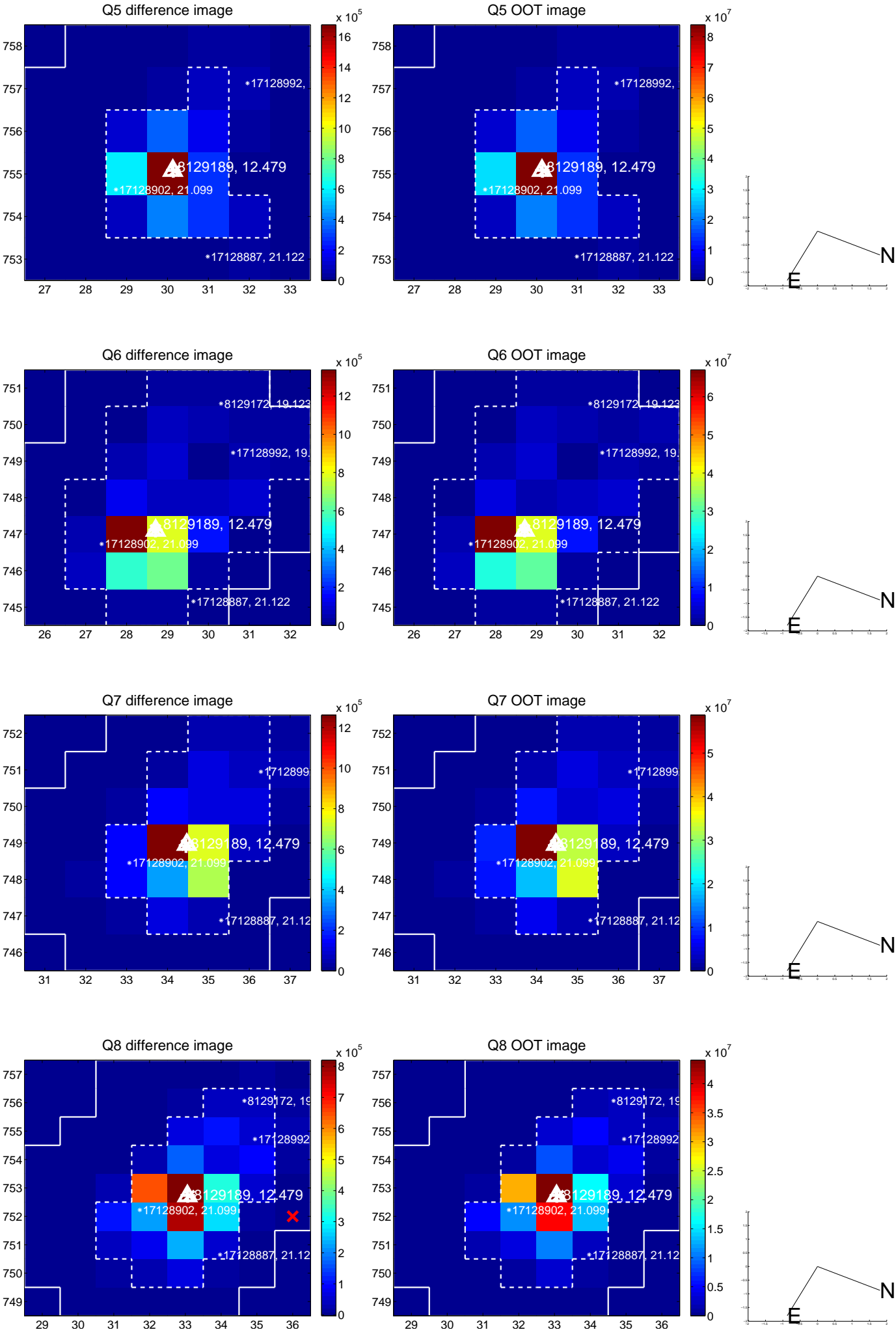


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

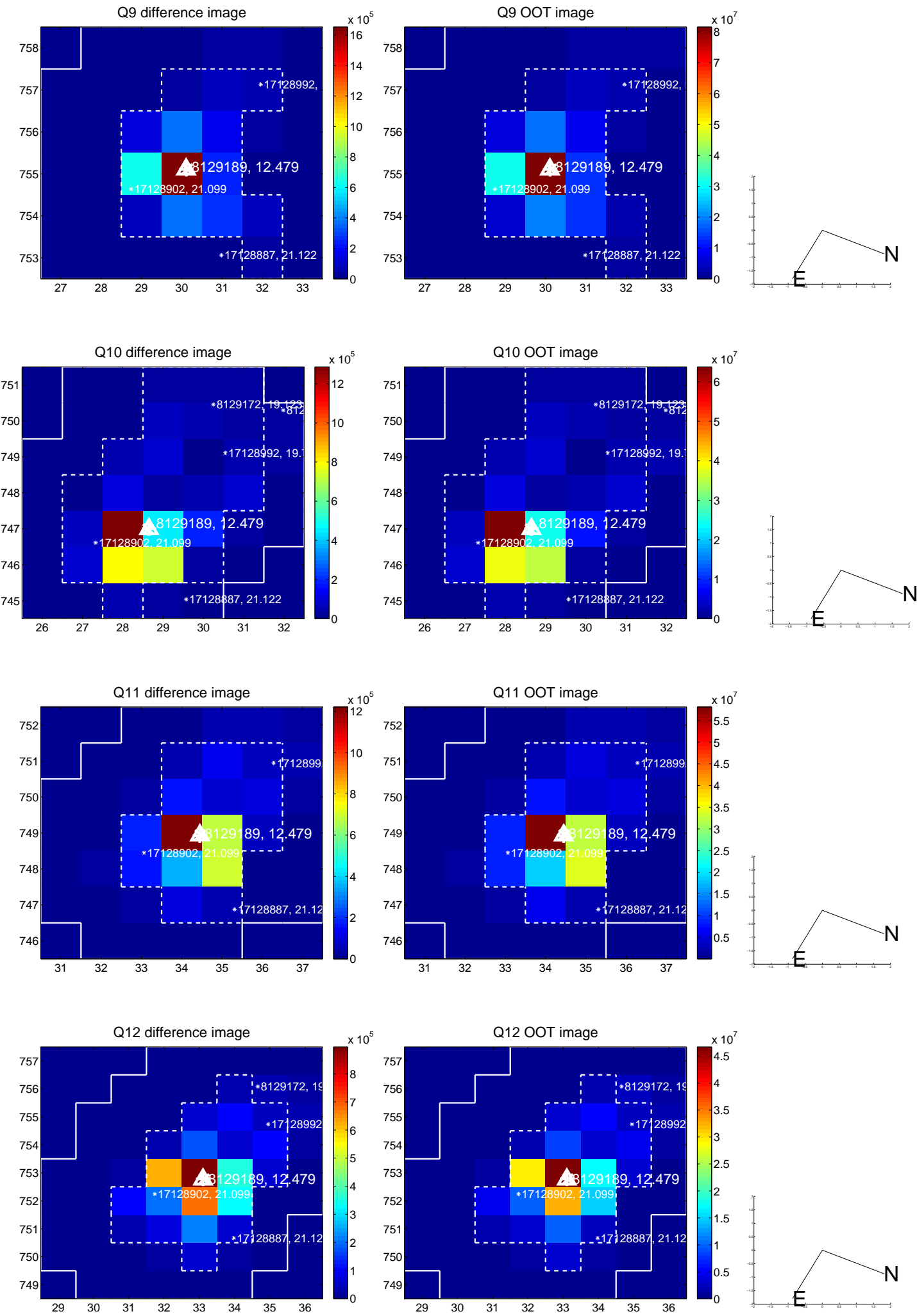
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



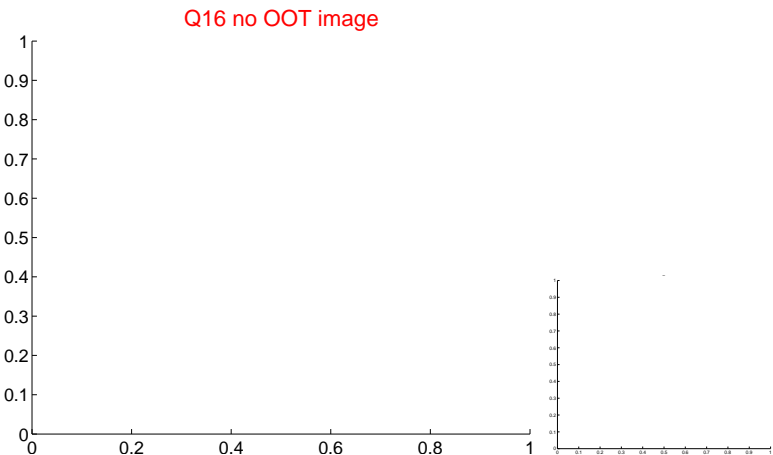
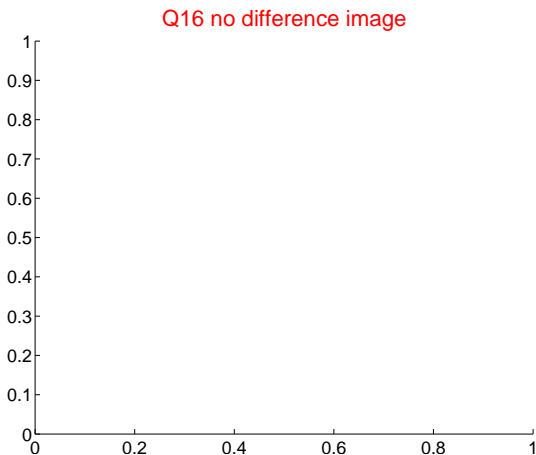
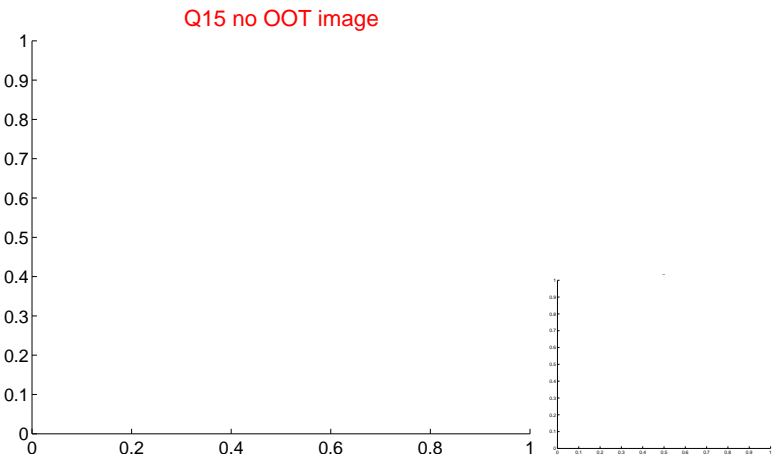
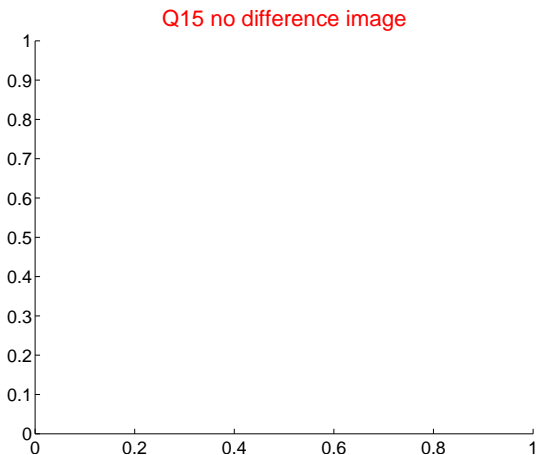
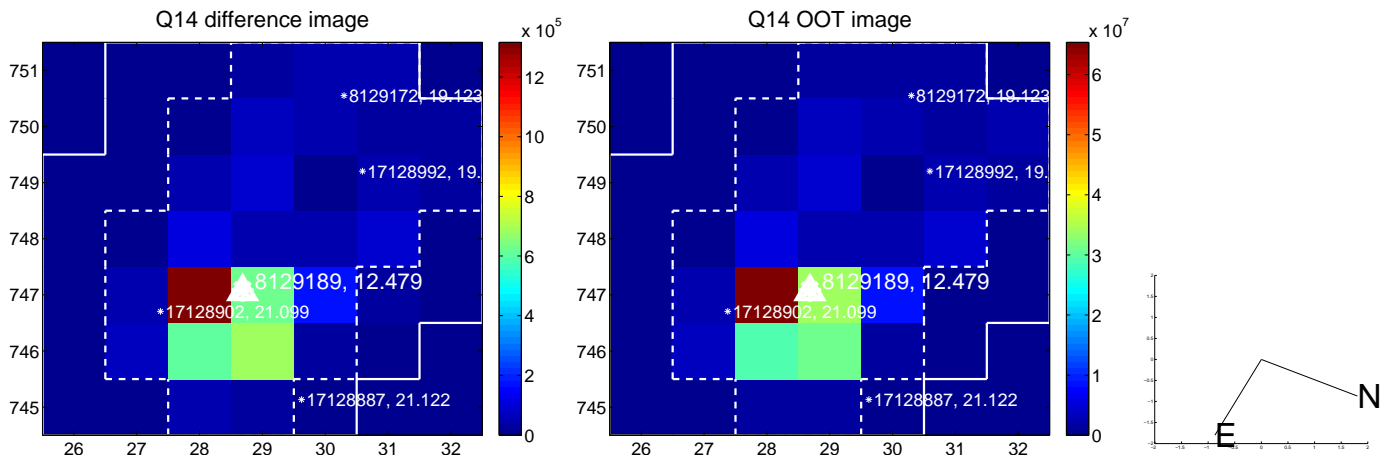
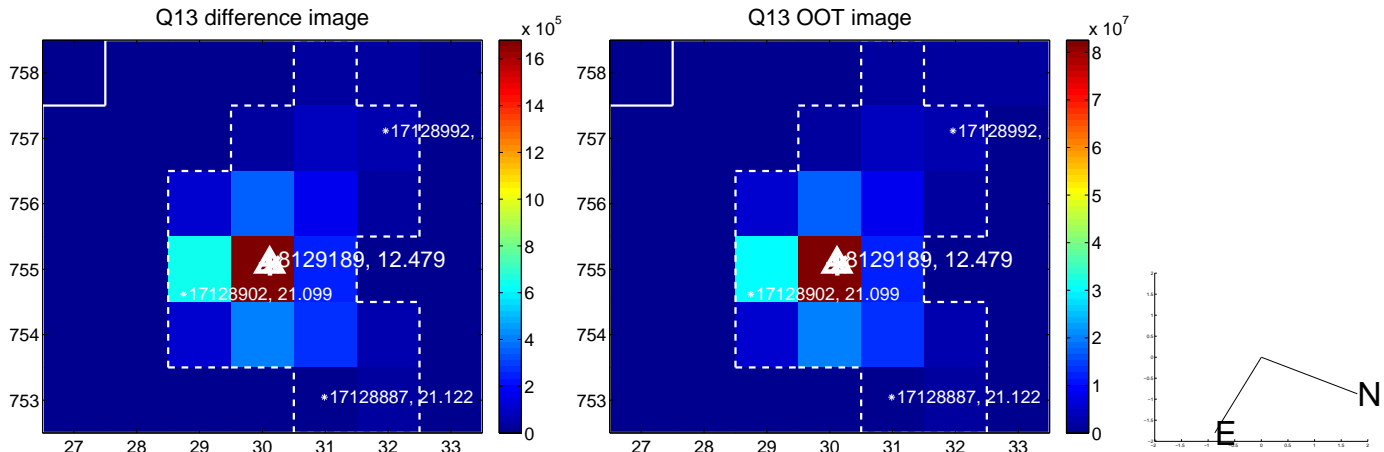
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



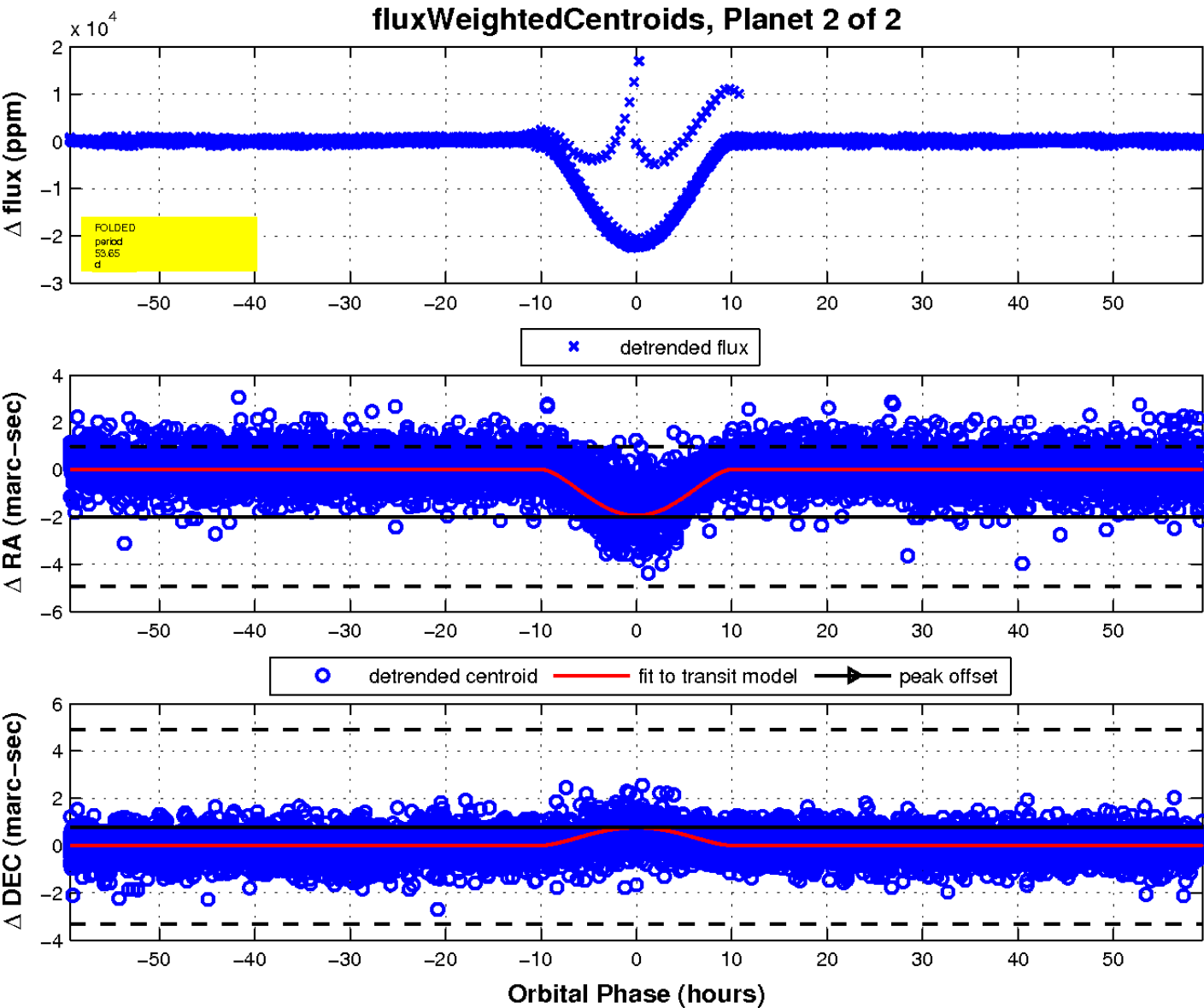
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

