Reviewer's report

Title: EPIPOI: A user friendly analytical tool for extraction of temporal and spatial parameters from epidemiological time-series

Version: 1 Date: 25 June 2012

Reviewer: Camille Pelat

Reviewer's report:

This paper presents a user-friendly tool for the analysis of multiple epidemiologic time series. While it is overall well written, the following points need to be clarified.

Minor Essential Revisions

Please precise what are the “other formats” accepted in page 5 and in appendix 1. I did not see that explained on the website.

Some years DO have 53 weeks (see ISO norm for week numbering); but you did not take that into account.

Page 9, line 4: “decomposing the time series into ITS constituent Fourier series of harmonics...”. This sentence misleads the reader in thinking that Fourier analysis is implemented to find the first 3 periodicities of the loaded time series. In fact, periodicities are fixed to 1 year, 6 months and 3 months. Please rephrase. Also, in the software itself, it would be clearer to write “annual”, “6-month” and “3-month” periodicities instead of 1st, 2nd and 3rd which somehow imply that they are the first 3 periods of the spectrum analysis.

The title also participates to this confusion by claiming the “extraction of temporal parameters”. While the software does quantify the height of peaks and the relative weight of 3 different pre-specified periodicities, it does not allow the extraction of the time series’ own periodicities. Moreover, no “spatial parameters” are extracted per se; maybe revise the title.

It is unclear how the harmonic “Amplitude” (in % in the interface) is computed. Please provide a formula in appendix. It will also help to see how you defined the phase.

What is the number of weeks you use for an annual cycle? 52? 52.17?

The smoothing procedures proposed in the software are not described in the paper.

Page 10, line 8 “95% confidence interval”. 1.96 sd(of the observations) is an approximation of the PREDICTION interval; it is not the confidence interval of the fit (also in Figure 3 legend).

Page 10, line 16: “we need first to eliminate the epidemic year(s)”: did you mean PANDEMIC years?

Colors: Page 11, lines 9-11 “through color coding different sizes of the
symbols…”. Please clarify this sentence. Also, in Figure 1: “The circles in the map represent the amplitude (size) and timing (colors) of the seasonal signal of each Brazilian state as obtained with the default settings of the program.” What does each color represent? i.e. where to find the correspondence color-timing?

Discussion: a summarized discussion about existing software and what is new to EPIPOI should be moved from appendix 2 to here. Line 17, “a periodic regression (e.g.[16]) function is generally a user-defined function rather than a built-in one…” While I agree with that statement, I do not see why you would cite ref 16 here, which, on the contrary, describes a user-friendly tool for performing periodic regression.

Availability and requirements: precise that 64 bits Windows is needed.

Figure 1. something seems to be missing before “Therefore…”

Appendix 2. First sentence is incorrect (or at least unclear), as you describe later two of these user-friendly tools. Please rephrase.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.