

Reviewer's report

Title: Spatial variation in the incidence of breast cancer and its proximity to soil dioxin contamination in Midland, Saginaw, and Bay Counties, Michigan

Version: 4 **Date:** 29 September 2008

Reviewer: Pierre Goovaerts

Reviewer's report:

Major Compulsory Revisions

I am glad to see that the authors have acknowledged and incorporated most of my comments

regarding the limitations of this study in their paper. I feel that the first sentence of the

conclusions in the abstract is still too strong, and should read "results suggest that increased

breast cancer incidence might be spatially associated with soil dioxin suggestion". The issue

now is whether anything can be inferred from such a study. Basically, the authors have detected

a few clusters of higher breast cancer incidence and a couple of them occurred in proximity to a

city where dioxin soil samples were available. I will let the editor decide whether it is worth

publication in an international journal.

Minor Essential Revisions

- Page 9. It appears that soil data were 3-dimensional, yet the spatial analysis in this

manuscript is conducted in two dimensions. Did the authors average the concentrations

measured within the same core or simply used the topsoil values?

- Page 10. Is the neighborhood radius $\#t$ used in the Gaussian function $f(t)$ similar to a

range of autocorrelation, and how is it estimated in practice?

- Page 13, last sentence. What is needed is a method that can "relax" these assumptions.

- Page 17. Since the medians are mostly below 90 ppt, it is unclear why the authors state

that "most samples exceed the two standards of 90 and 1,000ppt".

- Page 19. The fact that flood plain sediments were used as infill material in housing project explains some of the high concentrations found in deeper soil layers.
- Page 20, line 3. The expression “statistically significant breast cancer incidence” is too vague. Do the authors mean statistically higher?
- Page 23, 1st paragraph. Correct the following typos: geostatistical and incinerator.

Level of interest: An article of limited interest