Subject: Re: gaussian air dispersion model
Posted by Mark Hadfield on Mon, 28 Nov 2005 01:27:25 GMT
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guillaume.drolet.1@ulaval.ca wrote:
> Hi Mark,
>
> The following comes from N. Kljun. She developed the footprint model:
>
> "...you'll get the along-wind extent, but it's a crosswind-integrated
> model (no y-information).
> the full model gives you the y-information, but is not easy to be
> applied and it will be extremely time-consuming to run it for that many
> cases as you will have to.
> it'll be easier to estimate the y-extent using a simple gaussian
> dispersion function."
>
> I'm sorry, I made a mistake in my first post: I need to estimate the
> 'across-wind' extent (y-extent), and NOT the 'along-wind' (x-extent),
> which will be given by the model.

So are you going to estimate the cross-wind-integrated ground level concentration with the footprint model and the across-wind variation in concentration with a gaussian function? In which case you will need an estimate of across-wind width vs downwind distance (sigmay as a function of x). How are you going to estimate that?

> For this simple model, the following inputs are needed:
>
> zm = Measurement height [m]
> znot = Roughness length [m]
> h = Boundary layer height [m]
> sigmaw = sigmaw [m s-1]
> ustar = u* [m s-1]
> r = Percentage to be included [%]
>
> Some inputs are available from flux towers measurements
> (zm,sigmaw,ustar) while others are estimates (znot,h). The outputs are:
>
> xmax: location of maximum influence for the location
> xr :distance from receptor which include r% of the area contributing
> to the measured flux.

By "this simple model" you mean the footprint model, right?

> Is that enough information? For more details on the model, see:
> http://footprint.kljun.net

I've looked at the URL, but not read the paper. It sounds like the footprint model is a simple set of formulae. Do you plan to implement this in IDL? Shouldn't be too hard.

So where do you want help?

--
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