How can we add interactivity to Madagascar graphics? A proposal.

Joe Dellinger, BP

Some programs require specialized graphical interactivity, and to some extent must be one-off "masterpiece" efforts. But what about more mundane graphics tools such as "graph", "wiggle", and "grey", that accept data and parameters and produce a graphical image? Do we really need each of those to be a one-off masterpiece?

Taking advantage of the speed of modern computing and the consistency of Madagascar's parameter methodology, I will show how we can instead put the interactivity into the vplot rendering engine. Then, the graphics tools only have to specify a recipe for how to convert user interactions into an updated parameter file: essentially, a "printf" in the vplot file. The user makes their interactive choice on the plot, and the vplot rendering engine uses the "printf" to turn those picks into an updated parameter file, which it outputs. If desired, a simple wrapper can then redo the plot with the updated parameters, producing an updated plot "interactively" which can in turn be modified again.

The big advantage of my proposal is that just one more line needs to be added to an existing graphics tool's code to get a useful approximation of true interactivity. The harder work only needs to be done once, in the vplot rendering engine. (And it's not all that hard, because most of the required machinery is already in there!) Most importantly, the updated parameter file can be saved, allowing the final plot to be instantly and exactly reproduced at a later date, bringing interactivity in conformance with Madagascar's philosophy of reproduceability.