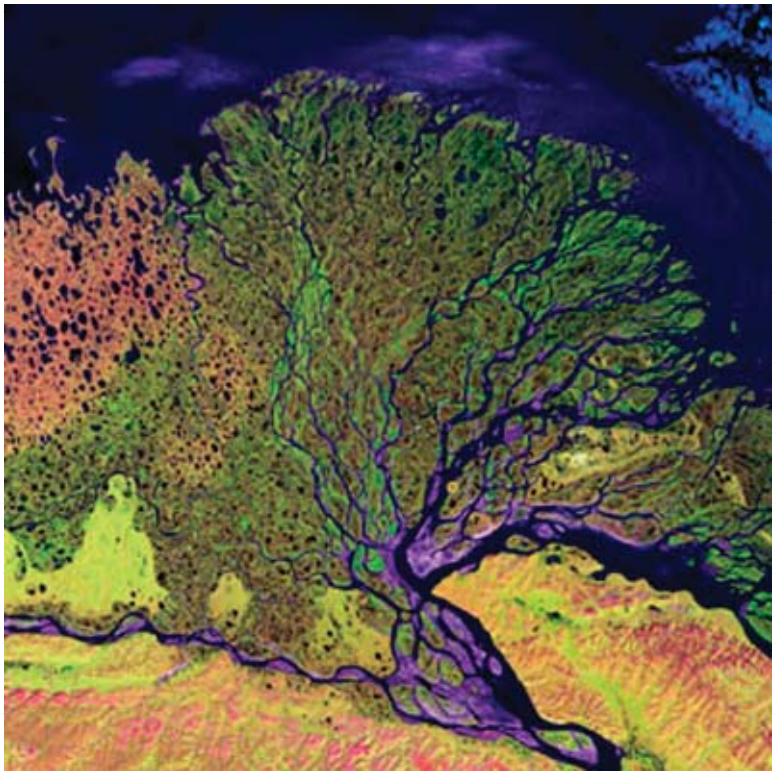
path formation

xmas assignment

The first VBA assignment has to do with the key concept of the adaptive machine - feedback. The adaptive machine adapts its structure through the notion of feedback being exerted by the input onto the machine and vice versa, the adjustment of the structure of the machine feeds back in such a way onto the input that the output patterns change.

The programme we discuss today (mesh_feedback) is an extension of last week's code (hyper_surface). hyper_surface changes randomly the z-axis coordinates of the mesh, whereas mesh_feedback contains a one-directional feedback: from the walking ball to the mesh. The mesh is a reflection of the behaviour of the running ball.
If you think about the mesh_feedback code as an ecological model, either element should have the capability to adjust to changes in its environment. And why is the ball moving randomly in the first place? In other words, in an ecological model, the stimulus for action of one element derives from a change in its environment. If there were no changes in the environment, there wouldn't be any evolution.
Thus, could you think of a way that the changes of the mesh have an impact on the movement of the ball? And could any initial condition of the mesh trigger the ball that provides information for change within the structure of the mesh, so that it becomes a mutual feedback where none of either adjustment is purely random?
Another interesting aspect is the idle behaviour of either element: the mesh settles back into its initial condition if the ball wouldn't run. This is the notion of forgetting or decay in the absence of stimulus. What kind of idle behaviour or decay could the ball display?

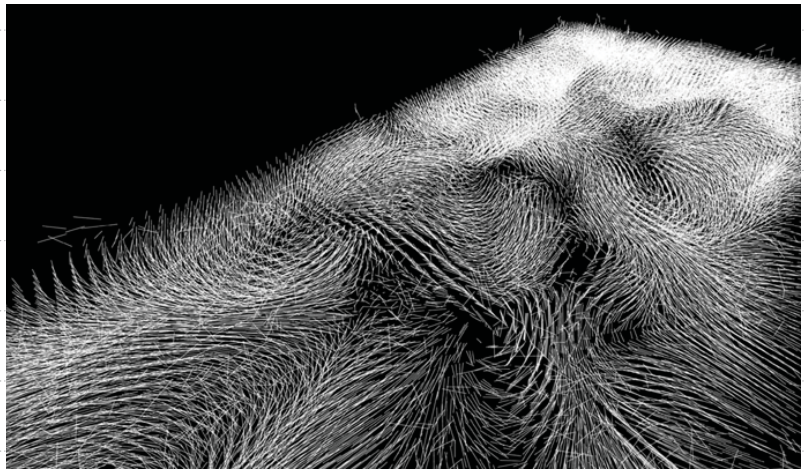


river beds are formed through a feedback loop between the water current that moves soil and stones and the soil qualities and gradients themselves

You shouldn't ask yourself necessarily what the purpose of each's elements adjustment could be. Say, eventually the ball could always take a route along the mesh where it doesn't have to climb or descend. Or route planners look at trodden paths first before laying down the asphalt (the path is not just the most direct route to the aim but the ground could get muddy and therefore the route might change and the path is not optimal in terms of distance).

There is no imperative to try out such a synergetic feedback model on the mesh. You could think of an architectural or social context if you like. But keep it simple as usual!

The deadline for this task is the first Wednesday when we return from the xmas break: 11 January 2005.
You should have had sufficient syntax to master this task but are equally expected to look up examples and other syntax from the help files. Additionally, there is a lot of help in the two *.bas files (friends & vectors), which we will give you.



Pablo Miranda's stygmeric environment