



Data Assimilation with the Continental Surface model SECHIBA using YAO software

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We present a sensitivity analysis performed on the one dimension version of the land surface model SECHIBA. This model was developed at IPSL institute in France. To perform this sensitivity analysis, the adjoint of the SECHIBA model was developed using a software named YAO, developed at LOCEAN/IPSL laboratory in France. YAO facilitates the implementation and the use of the adjoint of a numerical model. YAO uses a programming method based on a decomposition of complex systems into modular graphs.

The adjoint model was used to obtain the gradients values of some model output (surface temperature, humidity) with respect to each parameter, allowing us to rank the most influent parameters of the model. We present a series of twin experiments showing that some influent internal parameters can be estimated from the observations.