A modular software architecture for a pesticide leaching model

**INTRODUCTION**

The rate of leaching models to predict the fate of pesticides starts since the 80's, and in Europe the most significant models areDrafts, Pesticides, Water and Agric. Fire. They do not consider the influence of different aspects but this requires dependency from the other component supply. In this project, the soil component includes the following aspects: 1. Environmental and agricultural policies related to the disposal of pesticides on the ground. 2. The behavior of pesticides in the soil. 3. The model for pesticide leaching in soil and in the water component. 4. The model for the transport of pesticides in the water component. 5. The model for the transport of pesticides in the atmosphere. 6. The model for the transformation of pesticides in the environment.

**THE STRUCTURE**

The structure consists of a container, which describes a particular environmental condition (i.e., the "socio-environmental framework"). This container provides three main structures, hierarchically linked and with their own properties:

- **Bound**: representing the whole environmental context (i.e., the "socio-environmental framework"). Each object in this structure is a calculation method (what is generally called "model") in order to determine one or more output variables. The model is a description of the system of differential equations that can be evaluated using an estimation method.

**LINKS AMONG OTHER COMPONENTS**

The model approach of SEANLESS tends to focus on pesticide leaching aspects, but this does not require dependency from other components. It relies on a component supply. In this project, the soil component includes the following aspects: 1. Environmental and agricultural policies related to the disposal of pesticides on the ground. 2. The behavior of pesticides in the soil. 3. The model for pesticide leaching in soil and in the water component. 4. The model for the transport of pesticides in the water component. 5. The model for the transformation of pesticides in the environment. 6. The model for the transformation of pesticides in the atmosphere. 7. The model for the transformation of pesticides in the soil.

**ACKNOWLEDGMENT**

This project is part of the SEANLESS p project, which is funded by the European Commission under the contract ENV-2003-371614.