



## INRA-UMR CARTEL THONON

### Temporary Contract for Research Engineer

*Impact of pesticides on phytoplankton communities: agent-based modeling approach*

**Contact persons** (send detailed resume and cover letter):

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This work is part of a larger project which aims to assess the impact of cocktails of pesticides at low doses on the phytoplankton communities of the great Alpine lakes. The composition of the phytoplankton community is the result of complex interactions (competition for resources, resistance to sedimentation ... ..) between many species for which sensitivity to pesticides is specific. Mixture models enable to assess the risk of pesticide cocktails. In addition, we propose an agent-based approach that puts into interaction the various phytoplankton taxa in the presence of mixtures of pesticides in an attempt to simulate what would happen in a lake ecosystem. The answers that emerge at the community level will be analyzed in terms of specific structure (taxonomic composition) and morpho-ecological structure (functional groups composition). The model is to be parameterized using data from the literature together with experiment data from the project.

**Expected:** Develop an agent-based model to simulate the response of phytoplankton communities to the input of various pesticides. Carry out simulations with varying inputs and combinations of pesticide families. Identify the impact of low dose cocktails of pesticides on community composition and their relative importance compared to other parameters that govern community structure. The results will be published in scientific journals.

**Skills:** proven expertise in modeling and knowledge of aquatic biology and / or ecotoxicology.

**Qualification required:** PhD

**Duration and Salary:** 12 months (beginning of the contract March 1, 2012), 1800 € net / month;

**Deadline for receipt of applications:** **January 31, 2012**; possible hearing in February.

**Location :** UMR CARTEL - Thonon les Bains, FRANCE