

CORMAS Tutorial

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ESSA 2007 Conference

Outline

- Introduction
- How to design a model from scratch
(StupidModel benchmark)
- Cormas and Role-Playing Games
(MejanJeu)

What is Cormas?

Common-pool **R**esources and **M**ulti-**A**gent **S**ystems

- For several years now, agent-based simulation software exist. User groups (including ecologists and sociologists) are organized around generic tools that facilitate the construction of models and offer facilities ("virtual laboratories") for monitoring and analysing simulation trials
- The “*Green*” research unit, from Cirad, is particularly interested in models for integrated renewable resource management. The multi-agent simulation software that we have developed, named **Cormas**, is oriented towards the representation of interactions between people using renewable resource



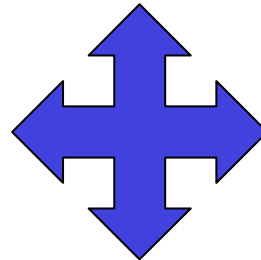
What are we doing ?

Artificial societies

Theory building

Applied models

*Understanding by knowledge
and data integration*



**Platform
implementation**

*Concrete capitalization,
Improving the methodology*

Action research

Using the models to help management



CORMAS web site

<http://cormas.cirad.fr>

The screenshot shows the website 'Ressources naturelles et simulations multi-agents' in Netscape 6. The browser window title is 'Ressources naturelles et simulations multi-agents - Netscape 6'. The address bar shows 'http://cormas.cirad.fr/'. The website header features the 'Cormas' logo and the tagline 'Ressources naturelles et simulations multi-agents'. Below the header, there is a navigation bar with 'Cirad • Web des SAVOIRS', 'ENGLISH VERSION', and 'RECHERCHER'. The main content area is titled 'Ressources naturelles et simulations multi-agents' and includes a sub-header 'Cormas 2001 est disponible'. A sidebar on the left lists navigation options: Démarche, Logiciel Cormas, Applications, Bibliographie, Formation, and Réseaux. The main text area contains a welcome message and a section titled 'L'actualité du mois' with a 'NEW' icon and the text 'En préparation: la nouvelle version de la plate-forme Cormas 2002.'

Ressources naturelles et simulations multi-agents - Netscape 6

Fichier Edition Afficher Rechercher Aller à Signets Tâches Aide

http://cormas.cirad.fr/ Rechercher

Signets My Netscape cormas cirad mail Google

Cormas
Ressources naturelles et simulations multi-agents
Cirad • Web des SAVOIRS

ENGLISH VERSION RECHERCHER

Ressources naturelles et simulations multi-agents

Cormas 2001 est disponible

Bienvenue sur cormas.cirad.fr

Ce site est consacré à la modélisation des relations entre les sociétés et leur environnement. Notre équipe fait partie du programme "Espace et Ressources" du CIRAD. Comment nous et nos partenaires utilisons les systèmes multi-agents dans le cadre de la gestion intégrée des ressources naturelles et renouvelables? C'est ce que vous découvrirez en vous promenant sur ce site...

Une rubrique sur la [démarche scientifique](#) présente les recherches, les systèmes multi-agents et différentes approches de la gestion des ressources naturelles. Le logiciel de simulation [Cormas](#), libre de droits, peut être téléchargé. Vous pouvez aussi consulter des exemples d'[applications](#) et des éléments de [bibliographie](#), ainsi qu'une description des [formations](#) que nous proposons. Ce site participe aux [réseaux](#) travaillant sur les systèmes multi-agents, avec le forum des utilisateurs de Cormas, la présentation des chercheurs impliqués et une sélection de liens vers d'autres sites.

L'actualité du mois

NEW En préparation: la nouvelle version de la plate-forme **Cormas 2002**.

Document : chargé

Business Outils Loisirs Interactif



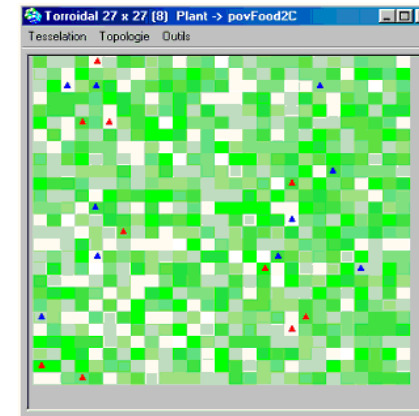
What are we doing ?

Artificial societies *Theory building*

<http://www.cormas.fr/en/applica/ecec.htm>

Pepper, J.W. and Smuts, B.B., 2000. The evolution of cooperation in an ecological context: an agent-based model.

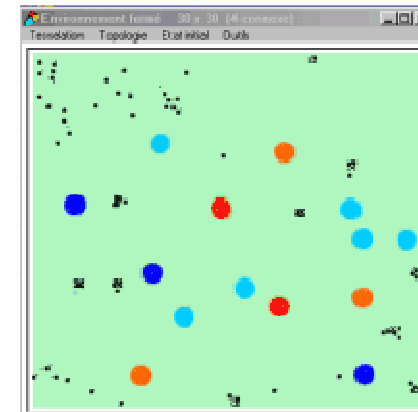
In: T.A. Kohler and G.J. Gumerman (Eds), Dynamics in human and primate societies. Oxford University Press / Sante Fe Institute, New York, pp. 45-76.



<http://www.cormas.fr/en/applica/dricol.htm>

Thébaud, O. and Locatelli, B., 2000.

<http://jasss.soc.surrey.ac.uk/4/2/3.html>





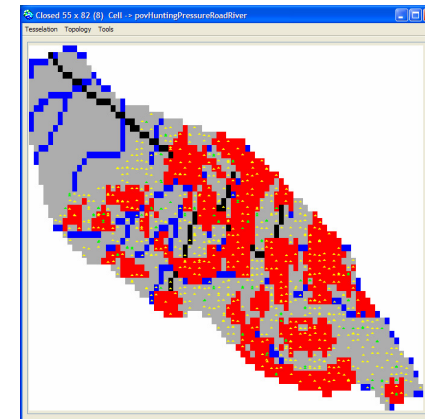
What are we doing ?

Applied models

*Understanding the co-adaptation
between resources dynamics and socio-economic organization
by knowledge and data integration*

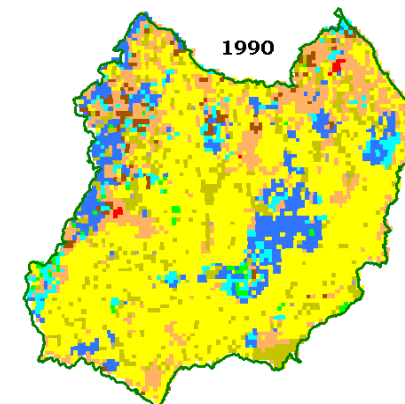
<http://www.cormas.fr/en/applica/djemiong.htm>

Bousquet, F., Le Page, C., Bakam, I. and Takforyan, A., 2001.
Multiagent simulations of hunting wild meat in a village
in eastern Cameroon. *Ecological Modelling*, 138:331-346.



<http://www.cormas.fr/en/applica/mejan.htm>

Etienne, M., Le Page, C. and Cohen, M., 2003.
A Step-by-step approach to building land management scenarios
based on multiple viewpoints on multi-agent system simulations.
<http://jasss.soc.surrey.ac.uk/6/2/2.html>





What are we doing ?

Action research

Using the models to help management

<http://www.cormas.fr/en/applica/selfCormas.htm>

D'Aquino, P., Le Page, C., Bousquet, F. and Bah, A., 2003. Using self-designed role-playing games and a multi-agent system to empower a local decision-making process for land use management: The SelfCormas experiment in Senegal. <http://jasss.soc.surrey.ac.uk/6/3/5.html>

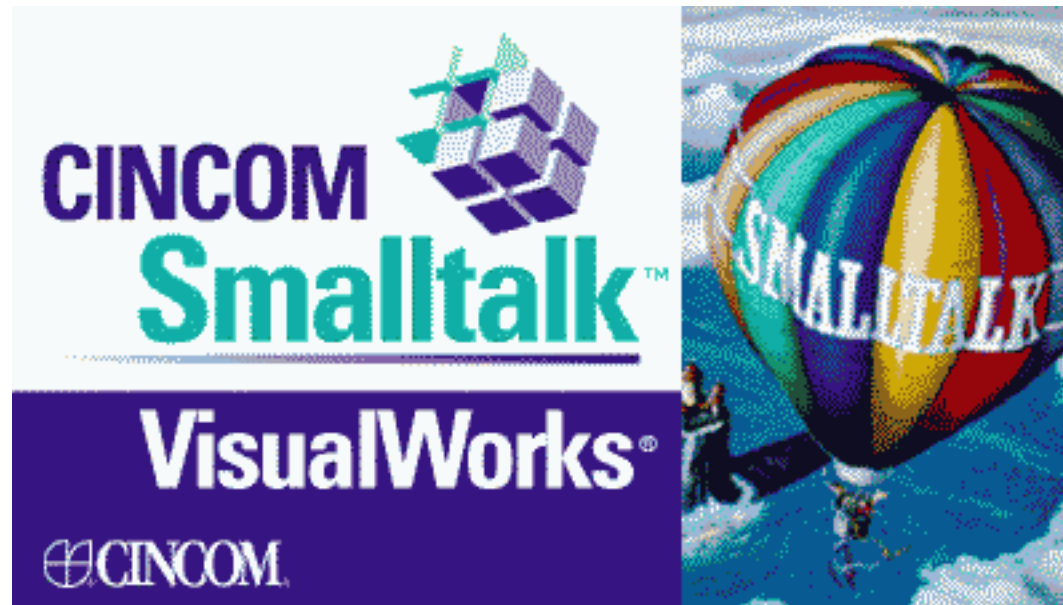


<http://www.ecole-commod.sc.chula.ac.th/>

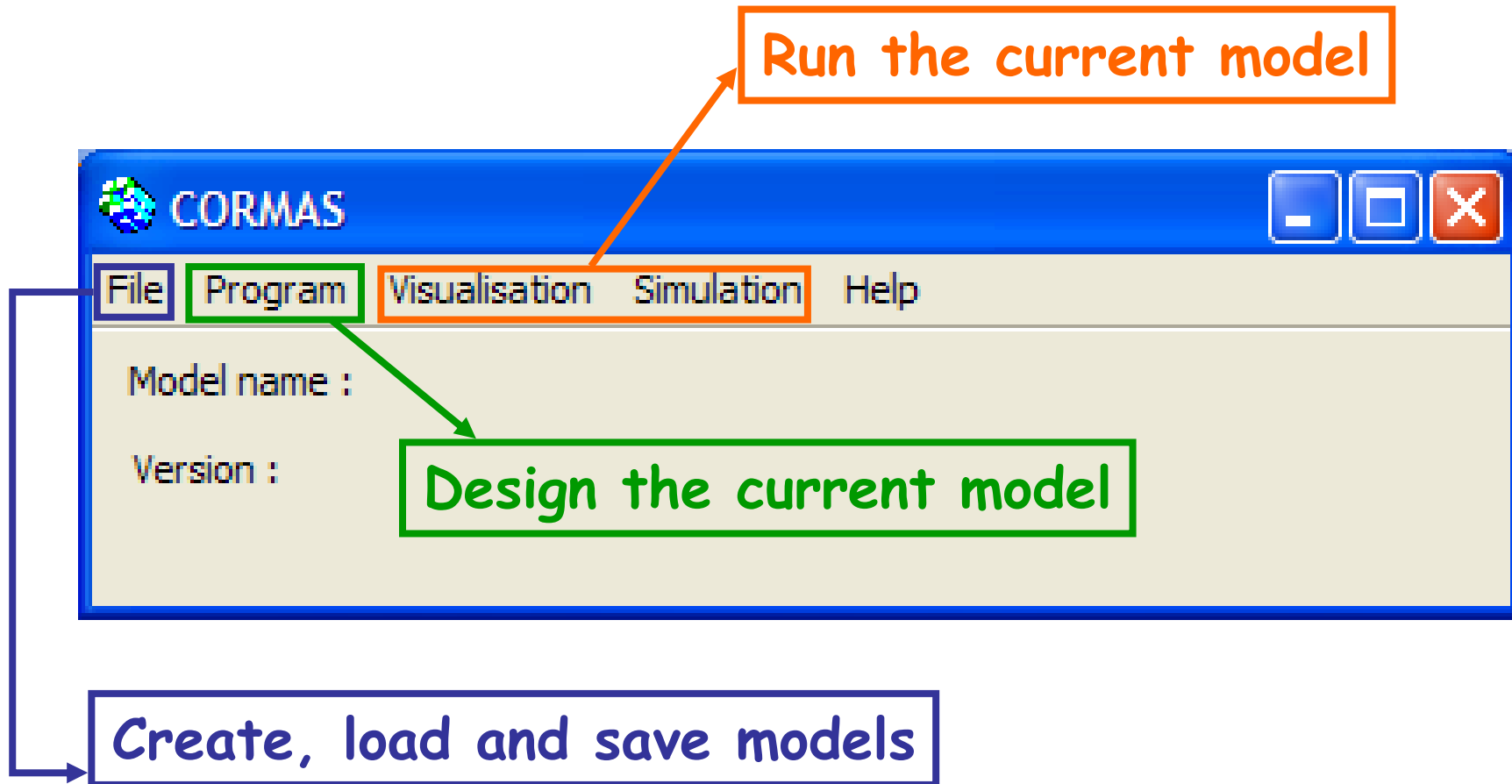
Gurung, T.R., Bousquet, F. and Trébuil, G., 2006. Companion modeling, conflict resolution, and institution building: sharing irrigation water in the Lingmuteychu watershed, Bhutan. *Ecology and Society*, 11:36. <http://www.ecologyandsociety.org/vol11/iss2/art36/>

What is Cormas?

- **Cormas** has been developed with **VisualWorks**, a programming environment based on the object-oriented language **Smalltalk**

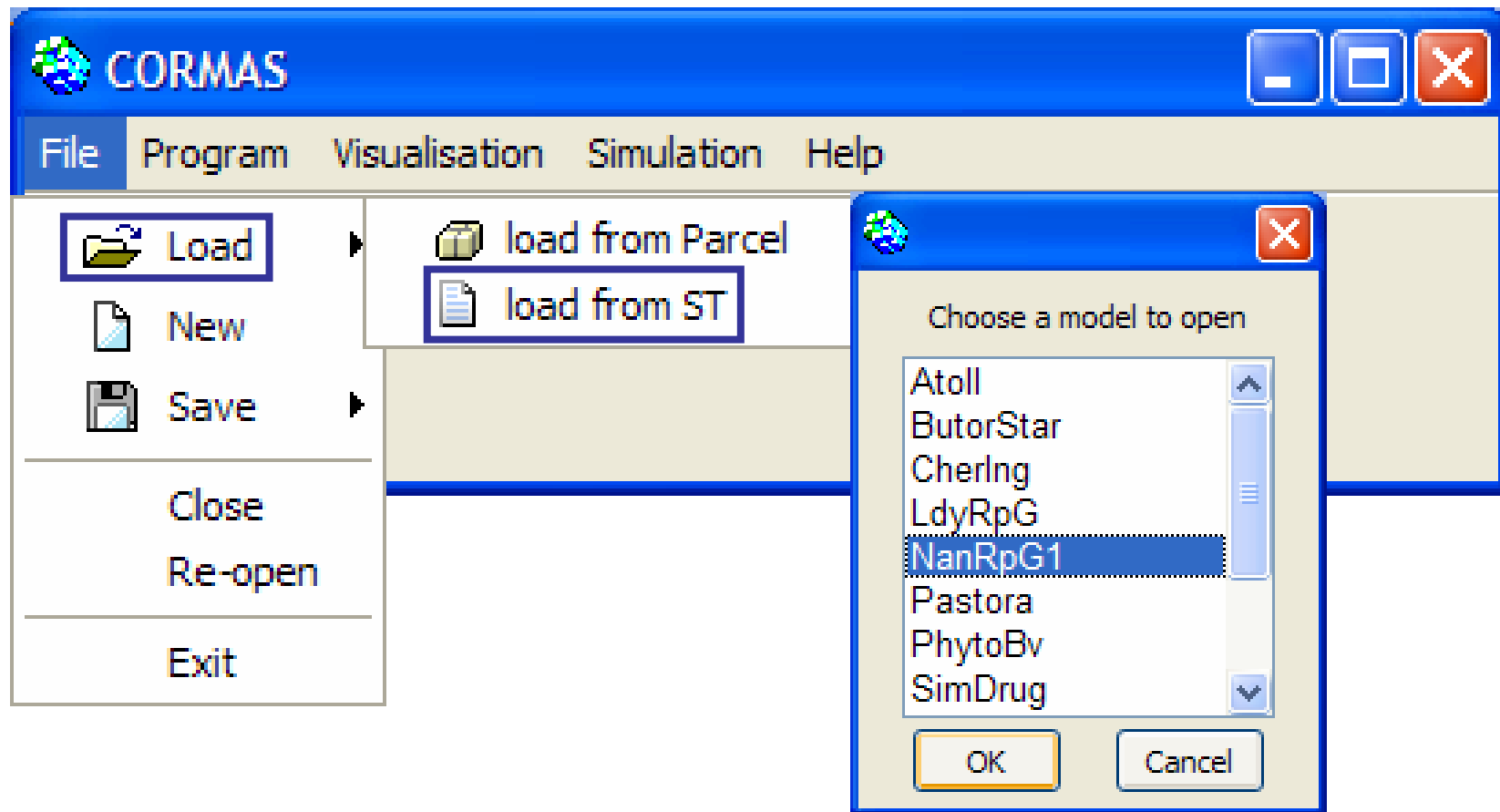


Cormas at a glance



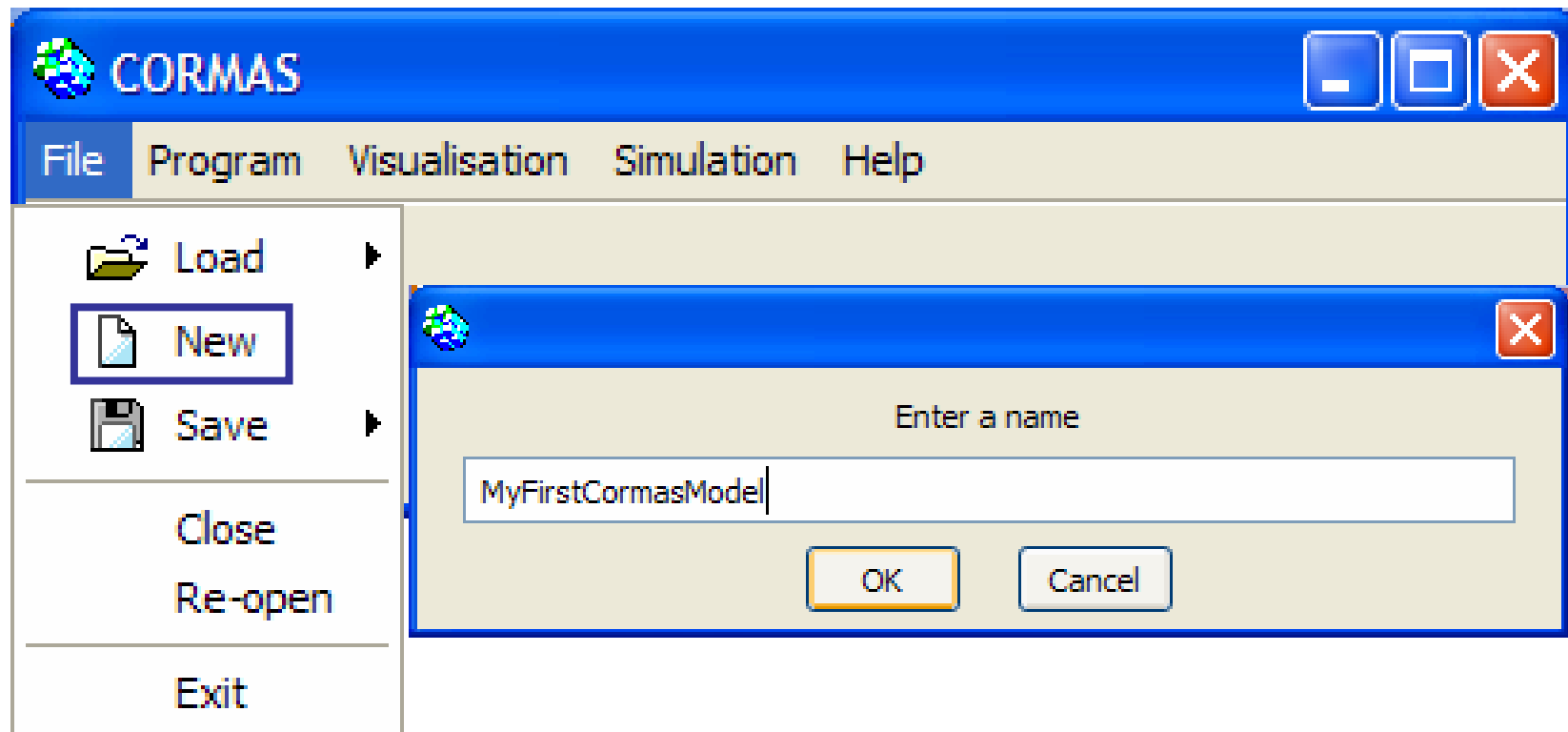
Cormas at a glance

Start to play with an existing model



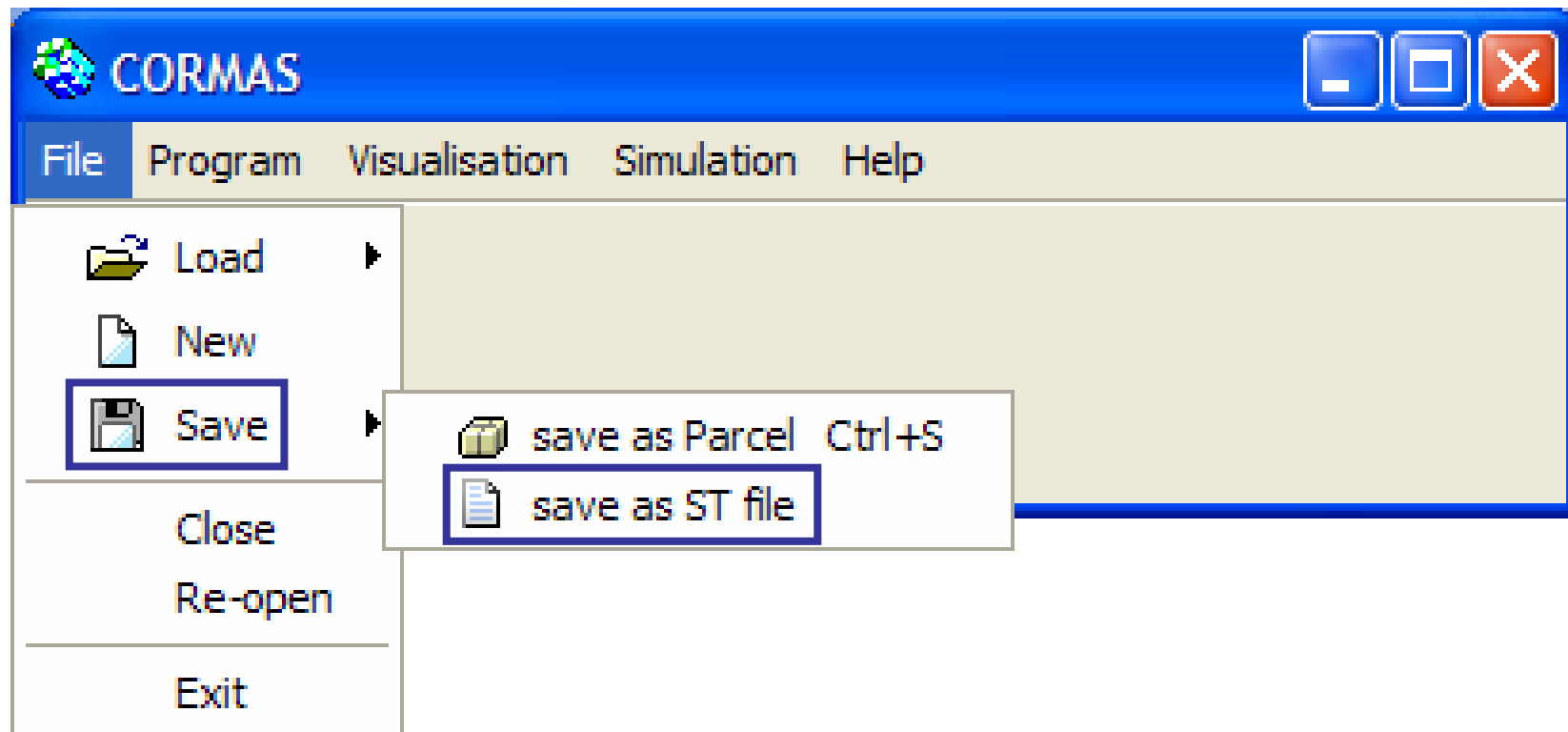
Cormas at a glance

Start to create a brand new model

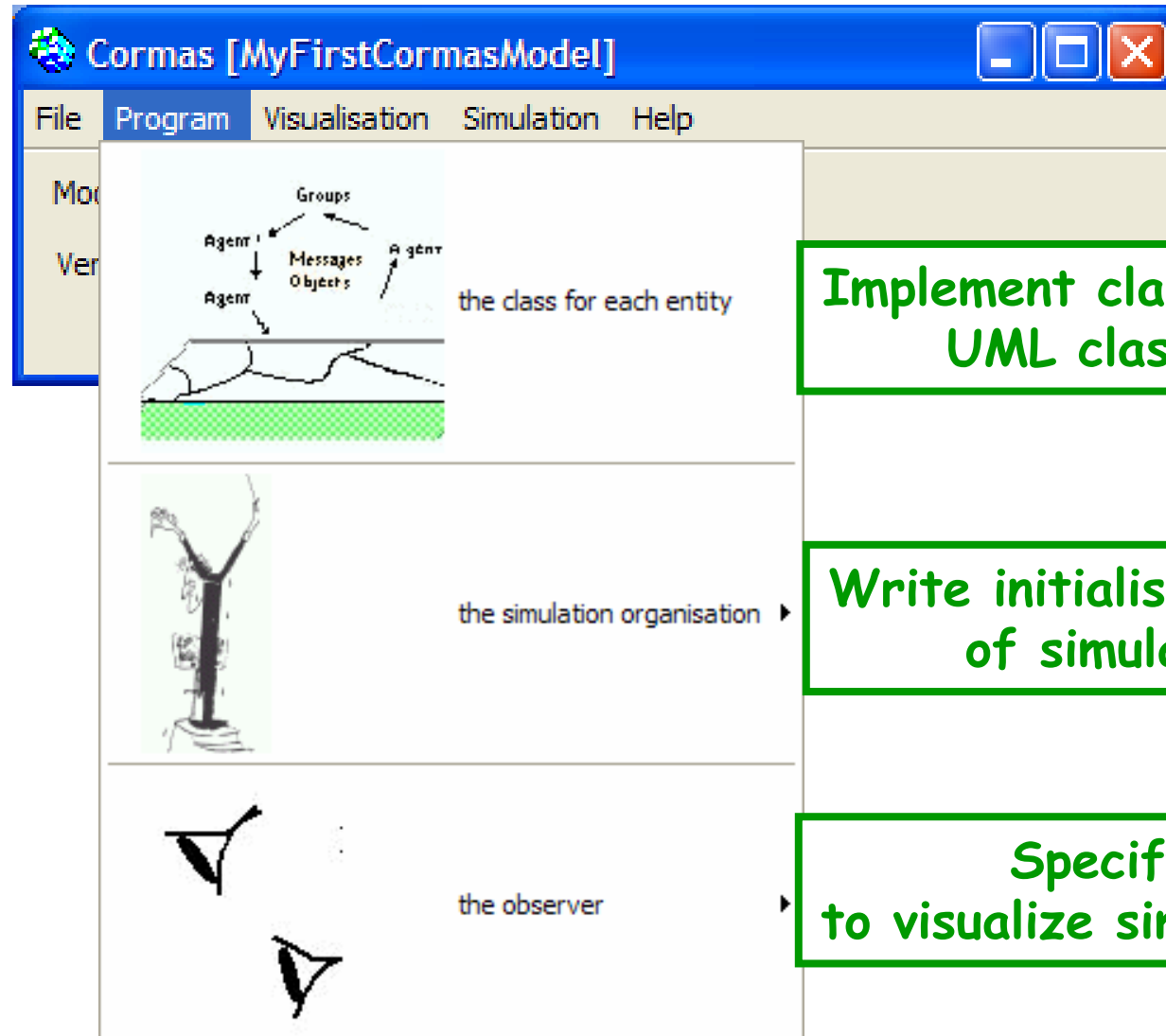


Cormas at a glance

Make your brand new model an existing one...



Cormas at a glance

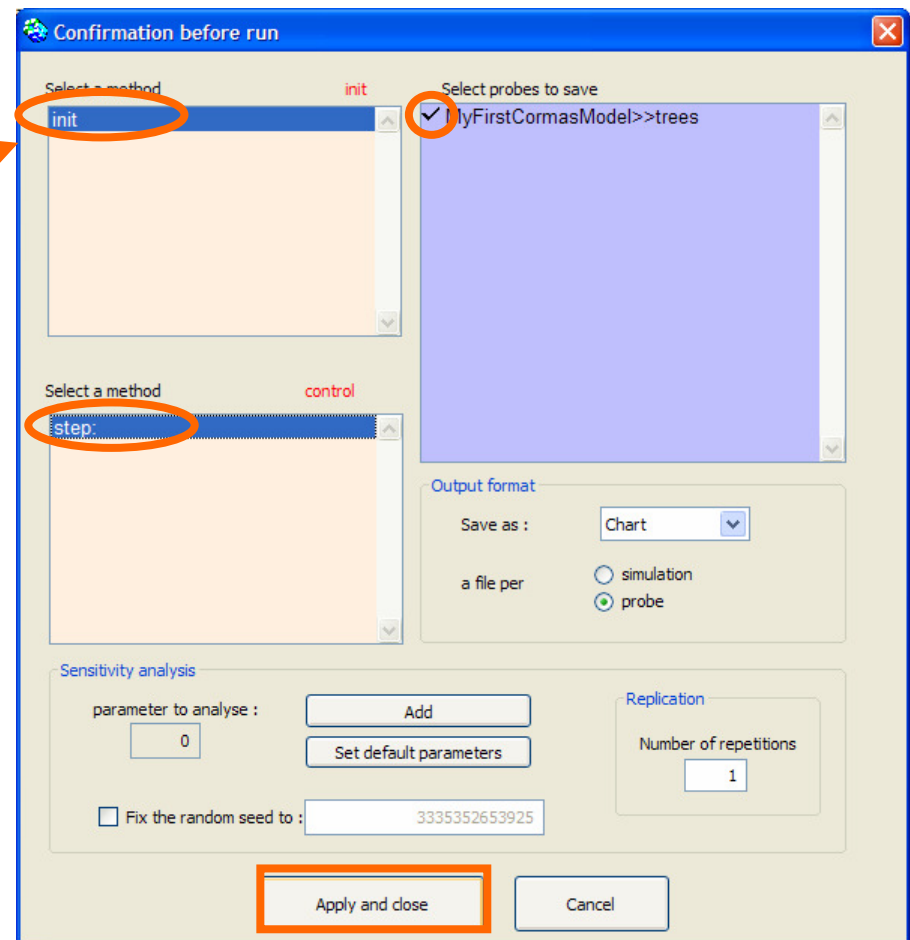
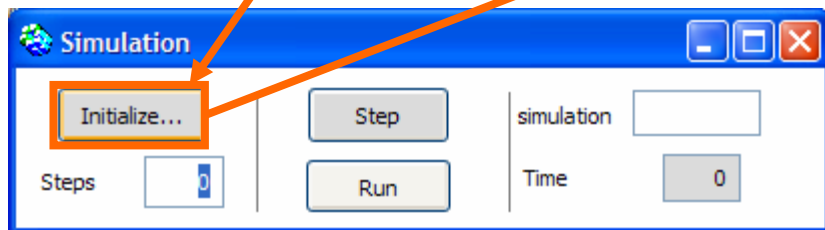
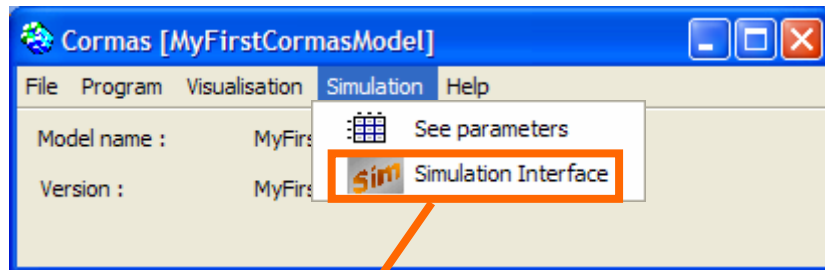


Implement classes from your UML class diagram

Write initialisation and scheduling of simulation scenarios

Specify means to visualize simulation scenario

Cormas at a glance



Cormas at a glance

Cormas [MyFirstCormasModel]

File Program **Visualisation** Simulation Help

Model name : **Probes**

Version :

Messages

Space

The main window features a menu bar with 'File', 'Program', 'Visualisation', 'Simulation', and 'Help'. Below the menu, there are three visualization options: 'Probes' (represented by a bar chart icon), 'Messages' (represented by a network diagram icon), and 'Space' (represented by a grid icon). The 'Probes' option is currently selected.

