

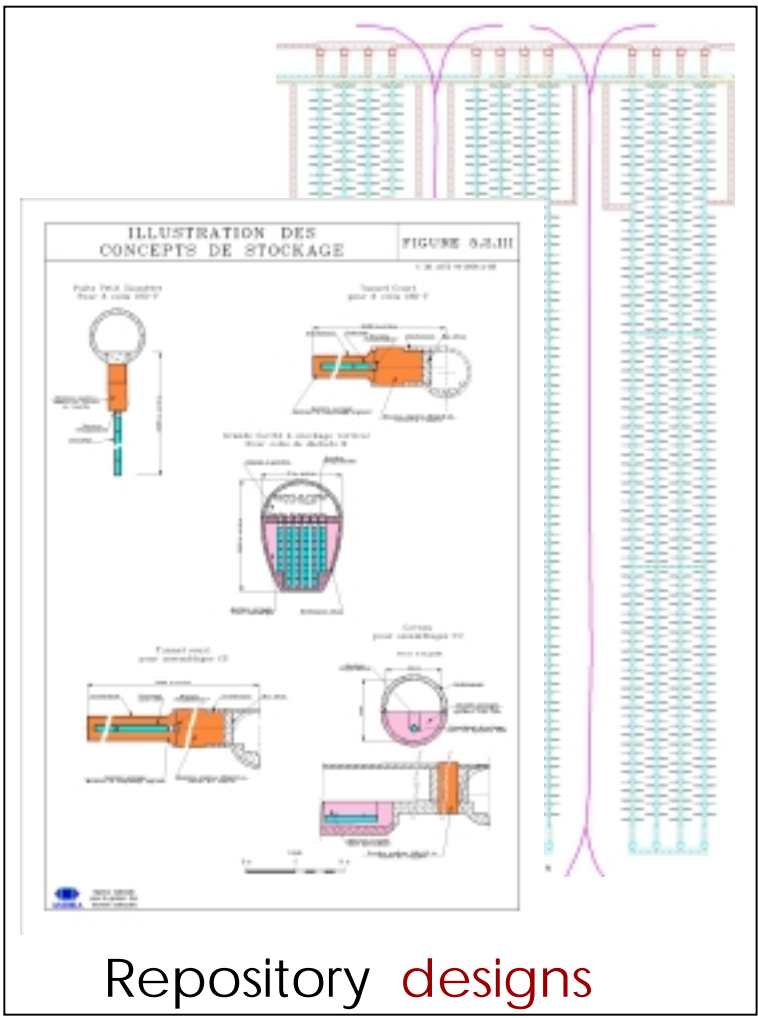
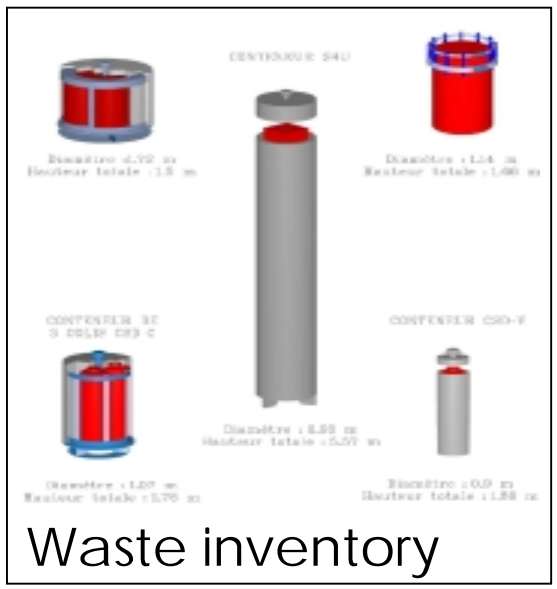
Introduction to the Couplex Workshop

Patrick LANDAIS

Andra

Scientific Department Manager

- Numerical simulation of the repository operation
 - ➡ To analyse its behaviour:
 - Constructibility
 - Evolution
 - Ageing
 - Radionuclide release
 - Radionuclide transfer and migration
 - ➡ To study its performances:
 - Design aid (performance allowance)
 - Durability, analysis of performance upkeep
 - Uncertainty analysis on data and models
 - Influence of external parameters



Design: Setup developed in order to meet the repository-safety objectives of a given inventory in a given site.

A platform project: ALLIANCES

*Site
Packages
Designs
Physical constants*

Data

*Phenomenological
codes*

Data communication
and exchange
environment

*Execution of couplings,
links and analyses*

Utility codes

*Mesh codes
Sensitivities
Probabilities
Pre-processing
Post-processing*

- Thermics
- Hydrodynamics
 - Hydrogeology
 - Hydraulics in structures
- Chemistry
 - Geochemistry
 - Materials behaviour
- Mechanics
 - Structure design and performance
 - Long-term behaviour
- Radiology
- Couplings
 - Between T, H, M, C, R
 - Transport-chemistry, ageing of materials and migration

All events likely to occur in a repository and having an influence on behaviour and safety

- Identification of situations (time-space resolution of the behaviour of repository)
- Qualification and validation (physical and numerical)
 - ➔ Codes
 - ➔ Couplings

Availability of methods to solve the various types of codes, situations

Qualified methods giving the right solution to all the required situations

Requirement for a strong Scientific involvement accompanying the platform project

- CEMRACS
- **Couplex**
- A shared scientific project (Groupement de Recherches MOMAS) with:
 - ➔ CNRS
 - ➔ Andra
 - ➔ CEA
 - ➔ EdF

Scientific programme developed with laboratories from French institutes, schools and Universities:

- ➔ research projects
- ➔ organization of dedicated international workshops

- Rising up typical subjects from our current applications
- Assessing ways to to solve typical situations
- Identifying teams interested with our scientific questions
- An opportunity to have an open call to the international community
- A first step to setting the “Groupement de Recherches” and to define its preliminary scientific programme

- Good level of mobilization, with 10 teams having been involved, and still new requests
- A difficult deal, with quite an iterative process to better define cases and data
- Very interesting results which will be presented and discussed during those 2 days workshop
- Thanks to
 - ➔ the Scientific Committee
 - ➔ the Scientific Secretary
 - ➔ all the teams having been involved