

**MAWARI PROJECT**  
**Regional workshop**

**Groundwater modeling and management.**  
**Field methodologies and implementation**  
**on the ATAR experimental site**

**Djibouti. 27 – 31 March 2007**

**I. Groundwater modeling and management : 27 – 28 – 29 March**

**Tuesday 27**

**Lectures**

Introduction to models in Hydrogeology  
Governing equations for groundwater flow  
Boundary and initial conditions  
Finite differences formulation  
Conceptual models development  
MODFLOW : Packages, Solution methods

**Practical works on PC**

Getting started with MODFLOW  
Calibrating a steady state model  
Performing sensitivity analysis

**Wednesday 28**

**Lectures**

Transport processes  
Governing equation for contaminant transport  
Transport equation solutions  
Principles of MODPATH and MT3DMS models

**Practical works on PC**

Calibrating a transient flow model. Stress periods.  
Delineating water wells capture zone using MODPATH  
Assessing wells interference  
Using transient model for prediction

## **Thursday 29**

### **Lectures**

Ongoing modeling works at the CERD

### **Practical works on PC**

Interfacing MODFLOW/MT3DMS

Modeling and predicting pollution migration using MT3DMS

Using models for aquifer management.

## **II. Field methodologies and implementation on the ATAR experimental site : Friday 30 – Saturday 31 March**

- Groundwater monitoring
  - Groundwater sampling for chemical and isotopic analyses
  - Data loggers : radar, dipper, pluviometer
  - Slug tests and pumping tests
  - Temperature and conductivity profiles
  - Analysis of boreholes cores
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