



LIFE Integrated Projects 2016

Optimising the implementation of the 2nd RBMP in the Malta River Basin District

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Action A.9:

***Development of Groundwater Models to Support Groundwater Management in the
Maltese Islands***

Deliverable D.5.2: Second Training Report

Development of Groundwater Models to Support Groundwater Management in the Maltese Islands

Deliverable D5.1: Training Material (Phase 2)

Deliverable D5.2: Second Training Report

Contracting Authority	Government of Malta Ministry for Energy and Water Management The Energy & Water Agency
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Table of Contents

Acronyms and abbreviations	3
1. Training objectives and program	4
2. Training activity and achievements	4
3. Training material	6

Acronyms and abbreviations

ADI	Adi Associates Environmental Consultants Ltd
CGT	University of Siena-Centre of Geotechnologies
EWA	Energy and Water Agency
GUI	Graphical User Interface
STEAM	Steam S.r.l.
TEA	TEA SISTEMI S.p.A.

1. Training objectives and program

The purpose of this report is to present the 2nd Training activity of the project “Development of Groundwater Models to Support Groundwater Management in the Maltese Islands”.

The training activity took place at the headquarters of the Energy and Water Agency, in Malta on November 26-28 2019.

The training was attended by the EWA’s Project Manager and six EWA Officers, and it was organized including theoretical lectures and exercises. It aimed to get the Officer informed and trained about:

- The model conceptualization used to build the numerical models;
- The effective use of the chosen numerical tools applied to develop the transient models, and the calibration for Malta MSLA;
- The explanation of the methodology applied to define and run the calibrated models.
- The tools available for visualization of model results.

The topics to be discussed during the 2-days training are:

1. Illustration of transient model for Malta MSLA;
2. Illustration of models sensitivity and calibration;
3. Tutorial: implementation and calibration of the model (a simplified version of it);
4. Visualization and post-processing of results.

The Trainers followed a program organized according to different Sessions, as detailed below.

Session 1 - Training Introduction <ol style="list-style-type: none"> 1. Training Objectives 2. Tools used in the training 	Session 3 - Exercise: Model calibration <ol style="list-style-type: none"> 1. Observation definition 2. Parameter definition 3. Calibration settings 4. Calibration run and evaluation of results 5. Import of the calibrated parameters, model run and evaluation of results
Session 2 - Exercise: model building <ol style="list-style-type: none"> 1. Model objective and settings 2. Grid and BC 3. Time settings 4. Observations 5. Model run and evaluation of results 	Session 4 - Tutorial on advanced visualization tools <ol style="list-style-type: none"> 1. Introduction on VTK files and ParaView 2. Generate VTK files from FREEWAT 3. Create 3D views, cross-sections, and animations of model results

2. Training activity and achievements

All the Sessions foreseen in the program schedule have been carried out.

The Officers participated actively during the training, and their comments and questions have been useful to improve the soft- and hard-knowledge included in models, especially for what concerns the Malta MSLA, which was the subject of the training. From the theoretical point of view, the Officers have been trained on the basic and fundamental concepts of model calibration procedures, including different approaches to run automatic calibration codes, like UCODE and PEST. Several strategies

to run parameters sensitivity and calibration have been implemented by each officer during the training, one different to another, to show the difference in performance and accuracy of results.

Differently from Activity 3, all the training material has been shared with the participants through the Training Web Page (see next section), including the video recording of lectures. The web platform also represents the official deployment of the training material (Deliverable D5.1), including slides and input files for the exercises.

3. Training material

As anticipated above, the training material is provided through the web platform available at the address:

<http://learning.kataclima.net/learning/moodle/course/view.php?id=23#section-3>

All the Officers got the credential to access the platform and visualize/download the material, which includes:

- Slides
- Sources (or link to) of software tools needed to run the exercise
- Input files used in the exercises
- Link to video recordings