



World Meteorological Organization
Working together in weather, climate and water

Develop an inventory on what is available and what is missing in terms of training programmes

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What is available

HEC-HMS (Hydrologic Engineering Center's Hydrologic Modeling System)

Quick Start Guide

Users Manual

Technical Reference Manual

Applications Guide

Validation Guide

Style sheet Reports Guide

Release Notes

Interface Translation

Certificate of Networthiness (CoN)



What is available

HEC-HMS

Quick Start Guide

- a brief introduction to the program

Chapter 1. program components and the user interface

Chapter 2. steps required to develop a hydrologic model

Chapter 3. an example application following the steps outlined
in Chapter 2



What is available

HEC-HMS

Users Manual

- How to use the various features and capabilities of the program
 - Installing and Running the program
 - Shared Component Data, Watershed Physical Description
 - Subbasin Elements, Reach Elements, Reservoir Elements
 - Hydrologic Simulation, Model Optimization
 - Forecasting Streamflow, Depth-Area Reduction
 - Erosion and Sediment Transport, Water Quality
 - Assessing Model Uncertainty....
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What is available

HEC-HMS

Technical Reference Manual

- descriptions of each of the models included in the program
 - find the mathematical derivation of the model equations
 - details on the numerical schemes employed in the program to solve the equations, and specific guidance on parameter estimation
 - Focuses more on understanding the science of hydrology
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What is available

HEC-HMS

Applications Guide

- provides practical suggestions for using the program to perform engineering work
 - illustrates application of program HEC-HMS including urban flooding studies, flood-frequency studies, flood-loss reduction studies, flood-warning system planning studies, reservoir design studies, environmental studies, surface erosion and sediment routing studies, and flood forecasting application
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What is available

HYPE (Hydrological Catchment Model)

Introduction

Model Description

Water Balance

File Reference

Code Overview

Coding Principles



What is available

HYPE

Model Description

- describes how HYPE model the flow and transformation of water, nutrients and organic carbon in soil, lakes and rivers
- Includes the effect of irrigation, point sources, floodplains and aquifers

Contents ; Processes above ground, Land routines, Rivers and lakes, Nitrogen and phosphorus in land routines, Nitrogen and phosphorus in rivers and lakes, Water management, Deep processes, Organic carbo, Tracers



What is missing

Language

only English

ex. HEC-HMS has interface translation but not for the training material

Material

only Paper

Contents

only Model



Suggestion

Language

only English  **at least UN language**

ex. HEC-HMS has interface translation but not for the training material

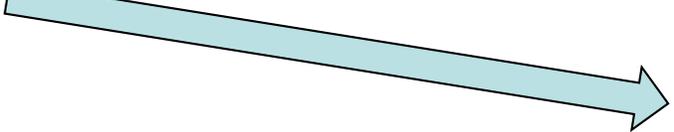
Material

only Paper  **video training material**

Contents

only Model  **start from the first step**

applicable cases





Suggestion

To increase the availability of training program

just model & platform description can't be useful
should **include all components of E2E EWS for FF**

Customized training program

Conduct or focus level-specific training after assessment of NMHS's or County's capability

- ex. 1st level : start from set-up proper hydrological observations
 - 2nd level : how to analysis flood forecasting
 - 3rd level : how to make decision for dam operation
 - 4th level : effective distribution method for forecasting result
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Suggestion

Enhanced ability to develop E2E EWS by themselves through training materials

without additional consultant fee

by using WMO CHy's recommendation model or platform
(which is freely available, low-end hardware requirement)

by supporting CoP E2E EWS for FF
(institutional support or other CoP members)

various applicable cases
(applications of various cases to basins/countries)



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Thank you Merci

