Introduction to ACNF Web Portal

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WMO VCP Training Workshop on Use and Interpretation of NWP Model
3-7 December 2012

香港天文台
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WMO RA II Pilot Project to develop support for NMHSs in numerical weather prediction (NWP)

Project Background

- Project Aims

  - To develop a consortium comprising NWP operators and product providers to support and assist NMHSs in their full use of NWP products
  - To foster development of NWP activities in provision of weather services, including forecasts and warnings.

- Steered by a Coordination Group comprising experts from participating Members, with experts of Hong Kong, China (HKO) and Republic of Korea (KMA) serving as coordinators.

Status

- A survey was conducted in 2010 and returns from 14 RA II Members were obtained on
  - use of NWP model products;
  - community NWP models;
  - knowledge exchange on NWP development and related training and research supports;
- Two community NWP models was selected:
  - Global and Regional Assimilation Prediction System (GRAPES) of the China Meteorological Administration (CMA);
  - Non-Hydrostatic Model (NHM) of the Japan Meteorological Agency (JMA)
- A web-based portal called the “Asian Consortium for NWP Forecasts” (ACNF) being developed by HKO

VCP Training Workshop on the Latest Development on Use and Interpretation of NWP Models

- Use and interpretation of global and regional NWP model outputs
- Model applications and post-processing techniques
- Introduction of ACNF web portal
- Community NWP models from ACNF
  - CMA GRAPES_Meso
  - JMA NHM
- Model downscaling experiments using the ACNF community models
- Sharing of experience from WMO Members
  - Friday p.m.

ACNF Web Portal

- on-line resources and information (need user's registration)
  - NWP products from RA II Members (HKO, KMA, CMA, and JMA)
    - NWP model prognostic charts
    - City-specific Numerical Weather Prediction (NWP) websites
    - EPS
    - severe weather guidance
- resources of community NWP model
  - source codes, case data, training materials
- Internet: to be announced

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Asian Consortium for NWP Forecast (ACNF)

WMO RA II Pilot Project to Develop Support for NMHS in Numerical Weather Prediction

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ACNF Main Page

NWP Model Products

- Prognostic Charts
- EPS Products
  - JMA medium-range EPS Web site
- Significant Weather Guidance
  - TIGGE Occurrence Probability of Extreme Events
- Tropical Cyclone Forecast Products
  - TIGGE Tropical Cyclone Ensemble Forecast Information
- Model Data Download
  - JMA High Resolution GSM Data Service
  - JMA NWP GPV Products (GRIB and Map Image)
  - NOMADS at NCEP

RAII City-Specific NWP Products

- Hong Kong, China
  - Bhutan
  - Bambodia
  - Hongkong
  - Kazakhstan
  - Kyrgyz
  - Laos
  - Mongolia
  - Myanmar
  - Nepal
  - Vietnam
  - Thailand
- Japan
- Korea

SWFDP Products

- CMA
- JMA
- KMA

Community NWP Models

- JMA Non-Hydrostatic Model (JMA-NHM)
  - Model Documentation
  - User Guide and Tutorial
  - Download Area (source code and case data)
  - Discussion Forum of JMA-NHM
- CMA GRAPES
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Tools and Reference

Tools

- Visualization
  - PANDAH
  - NCAR Graphics Command Language(NCL)
  - GrADS
  - OpenGrADS
  - McIDAS-V
- Software Libraries
  - wgrib and wgrib2
  - NCEP GRIB-1 and GRIB-2 decoding/encoding libraries
  - NetCDF

Reference

- Training Materials of WMO VCP Training Workshop on the Latest Developments on the Use and Interpretation of Numerical Weather Prediction (NWP) Models
- Post-processing Techniques and Software

What's New

- Announcement
- News and Updates of ACNF

Training Materials of VCP Workshop

WMO VCP Training Workshop on the Latest Developments on the Use and Interpretation of Numerical Weather Prediction(NWP)Models
Hong Kong Observatory, 3-7 December 2012
Venue: Conference Hall, HKO Headquarters

		3 Dec(Mon)	4 Dec(Tue)	5 Dec(Wed)	6 Dec(Thu)	7 Dec(Fri)
am	Session 1 09:15-10:45	*Workshop opening* **Introduction of NWP systems in CMA** (CMA)	**Applications of CMA NWP systems in severe weather forecasting(1)** (CMA)	**Introduction of NWP Systems in JMA (NPD)**	**Applications and Model Post-processing of JMA-NHM** (NPD)	**Research and Development of Mesoscale Data Assimilation at MRI** (MRI)
	Session 2 11:00-12:30	**Introduction of GRAPES-Meso**	**Applications of CMA NWP systems in severe weather forecasting(2)** **Research and Future Development of NWP Systems in CMA** (CMA)	**Introduction and Recent Advances of Data Assimilation** (MRI)	***Practice Session on JMA-NHM*** (NPD/MRI)	**Future Development of Mesoscale Modelling and Data Assimilation in JMA** (NPD and MRI)
pm	Session 1 14:00-15:30	**Introduction of ACNF Web Portal** (HKO)	***Practice Session on GRAPES-Meso*** (CMA)	**Introduction of JMA-NHM** (NPD)	***Practice Session on JMA-NHM*** (NPD/MRI)	**Presentations and Experience Sharing by Participants**
	Session 2 15:45-17:15	***Practice Session on GRAPES-Meso*** (CMA)	**Open discussion, wrap-up & closing** (CMA)	**Operation and Development of NWP System using JMA-NHM in HKO** (HKO)	***Practice Session on JMA-NHM*** (NPD/MRI)	**Open discussion, wrap-up & closing** (NPD/MRI)

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RAII City-Specific NWP Products

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- Announcement
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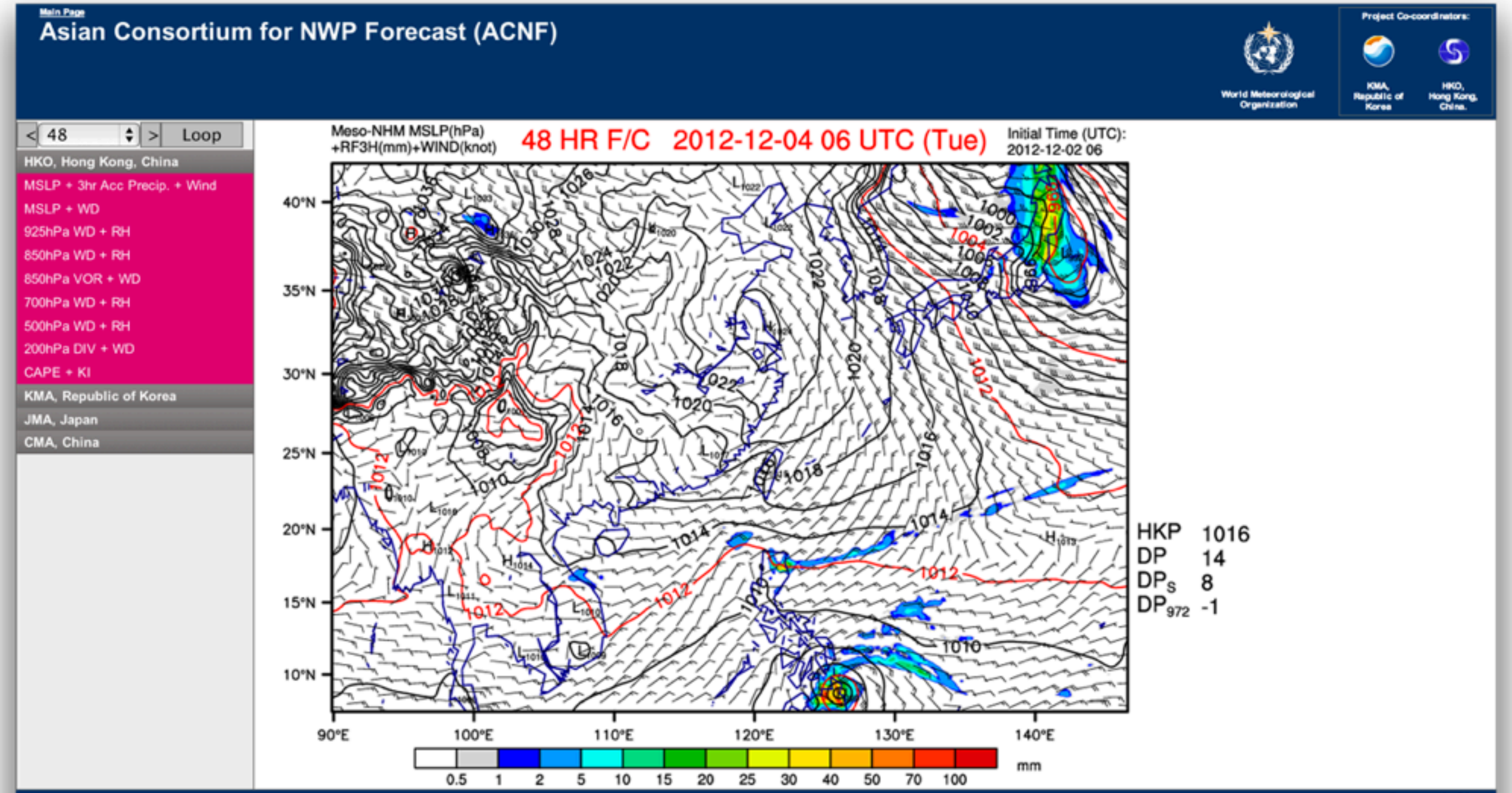
NWP Prognostic Chart from HKO



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World Meteorological Organization

Asian Consortium for NWP

WMO RA II Pilot Project to Develop Support for NMH

user name :

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  - Kyrgyz
  - Laos
  - Mongolia
  - Myanmar
  - Nepal
  - Vietnam
  - Thailand
- Japan
- Korea

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- JMA
- KMA

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  - Model Description
  - User Guide and Tutorial
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  - PANDAH
  - NCAR Graphics Command Language(NCL)
  - GrADS
  - OpenGrADS
  - McIDAS-V
- Software Libraries
  - wgrib and wgrib2
  - NCEP GRIB-1 and GRIB-2 decoding/encoding libraries
  - NetCDF

Reference

- Training Materials of WMO VCP Training Workshop on the Latest Developments on the Use and Interpretation of Numerical Weather Prediction (NWP) Models

What's New

- Announcement
- News and Updates of ACNF

Community NWP Model - CMA GRAPES_Meso

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Asian Consortium for NWP Forecast (ACNF)

WMO RA II Pilot Project to Develop Support for NMHS in Numerical Weather Prediction

Main Page | About | Help | FAQ | Special pages | Log in

Browse
Main page
Current events
Recent changes
Random page
Help
Edit
Edit this page
This page
Discuss this page
New section
Printable version
Context
Page history
What links here
Related changes
My pages
Log in / create account
Special pages
New pages
File list
Statistics
More...

Community Model of Asian Consortium on NWP Forecasts (ACNF) Global and Regional Assimilation Prediction System of the China Meteorological Administration (CMA GRAPES)

User Guide

Version 1.0 (based on Chinese version from CMA as of 8 June 2011)

Contents [hide]

1. Introduction
2. Installation of GRAPES_MESO
3. Preparation for Data and Compilation of GRAPES_MESO
4. Compilation
5. Model Execution
6. Visualization
7. Reference and Useful Internet Resources

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1. Introduction

This document describes the procedure to install, compile and perform test case simulation using the mesoscale version of CMA GRAPES, also known as GRAPES_MESO.

More information and real-time products of GRAPES_MESO from CMA can be accessed from this link: http://www.nmc.gov.cn/publish/nwp/grapes/

2. Installation of GRAPES_MESO

(a) Hardware requirements of GRAPES_MESO

A minimum of 60 MB of disk space to uncompress, compile and execute GRAPES_MESO codes. The static or constant data require disk space of about 10 GB (440 MB in compressed format). Data volume of the testing case of GRAPES_MESO is about 2 GB.

(b) Software and Operating System Requirements

Linux or UNIX system with Fortran and C compilers, GrADS (http://www.iges.org/grads/) and MPI (Message Passing Interface) environment.

The required number of computation nodes and processors, and the disk volumes depend on the size of model coverage and model resolution.

(c) Methods to obtain the codes of GRAPES_MESO

Community NWP Model - JMA NHM

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Asian Consortium for NWP Forecast (ACNF)

WMO RA II Pilot Project to Develop Support for NMHS in Numerical Weather Prediction

Main Page | About | Help | FAQ | Special pages | Log in

Browse
Main page
Current events
Recent changes
Random page
Help
Edit
Edit this page
This page
Discuss this page
New section
Printable version
Context
Page history
What links here
Related changes
My pages
Log in / create account
Special pages
New pages
File list
Statistics
More...

Co-Coordinator of this Pilot Project

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Contents [hide]

JMANHM
- forecast variables
- namelists
- file format
- tool
- data input/output
- library:NuSDaS

JMANHM

forecast variables

forecast variable list

namelists

namelist of fcst_nfx : forecast model
namelist of nhmgrd_n01 : preprocess for input data
namelist of nhmcst_n01 : preprocess for topography data

file format

file format of input data (U, V, T, Q etc.) and topography data
file format of constant data for radiation process
file format of boundary temporary data which is used during time integration

tool

drawing NuSDaS tool: PANDAH

data input/output library:NuSDaS

NuSDaS

Japanese version

Edit this page | Discuss this page | Page history | Wha

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Asian Consortium for NWP Forecast (ACNF)

WMO RA II Pilot Project to Develop Support for NMHS in Numerical Weather Prediction

Main Page | About | Help | FAQ | Special pages | Log in

Browse
Main page
Current events
Recent changes
Random page
Help
Edit
Edit this page
This page
Discuss this page
New section
Printable version
Context
Page history
What links here
Related changes
My pages
Log in / create account
Special pages
New pages
File list
Statistics
More...

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Download the tutorial material in the following:

NHM_Tutorial (Part 0 - Introduction)
NHM_Tutorial (Part 1 - Brief Usage)
NHM_Tutorial (Part 2 - Idealized Simulation)
NHM_Tutorial (Part 3 - Real Case Simulation)

Edit this page | Discuss this page | Page history | What links here | Related changes

Main Page | About Web Portal of Asian Consortium for NWP Forecast | Find:

NWP Model Products

- Prognostic Charts
- EPS Products
  - JMA medium-range EPS Web site
- Significant Weather Guidance
  - TIGGE Occurrence Probability of Extreme Events
- Tropical Cyclone Forecast Products
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  - Nepal
  - Vietnam
  - Thailand
- Japan
- Korea

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- CMA
- JMA
- KMA

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  - User Guide and Tutorial
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  - Discussion Forum of JMA-NHM
- CMA GRAPES
  - Model Description
  - User Guide and Tutorial
  - Download Area (source code and case data)
  - Discussion Forum of GRAPES

Discussion Forum of JMA-NHM and CMA-GRAPES

Tools and Reference

Tools

- Visualization
  - PANDAH
  - NCAR Graphics Command Language(NCL)
  - GrADS
  - OpenGrADS
  - McIDAS-V
- Software Libraries
  - wgrib and wgrib2
  - NCEP GRIB-1 and GRIB-2 decoding/encoding libraries
  - NetCDF

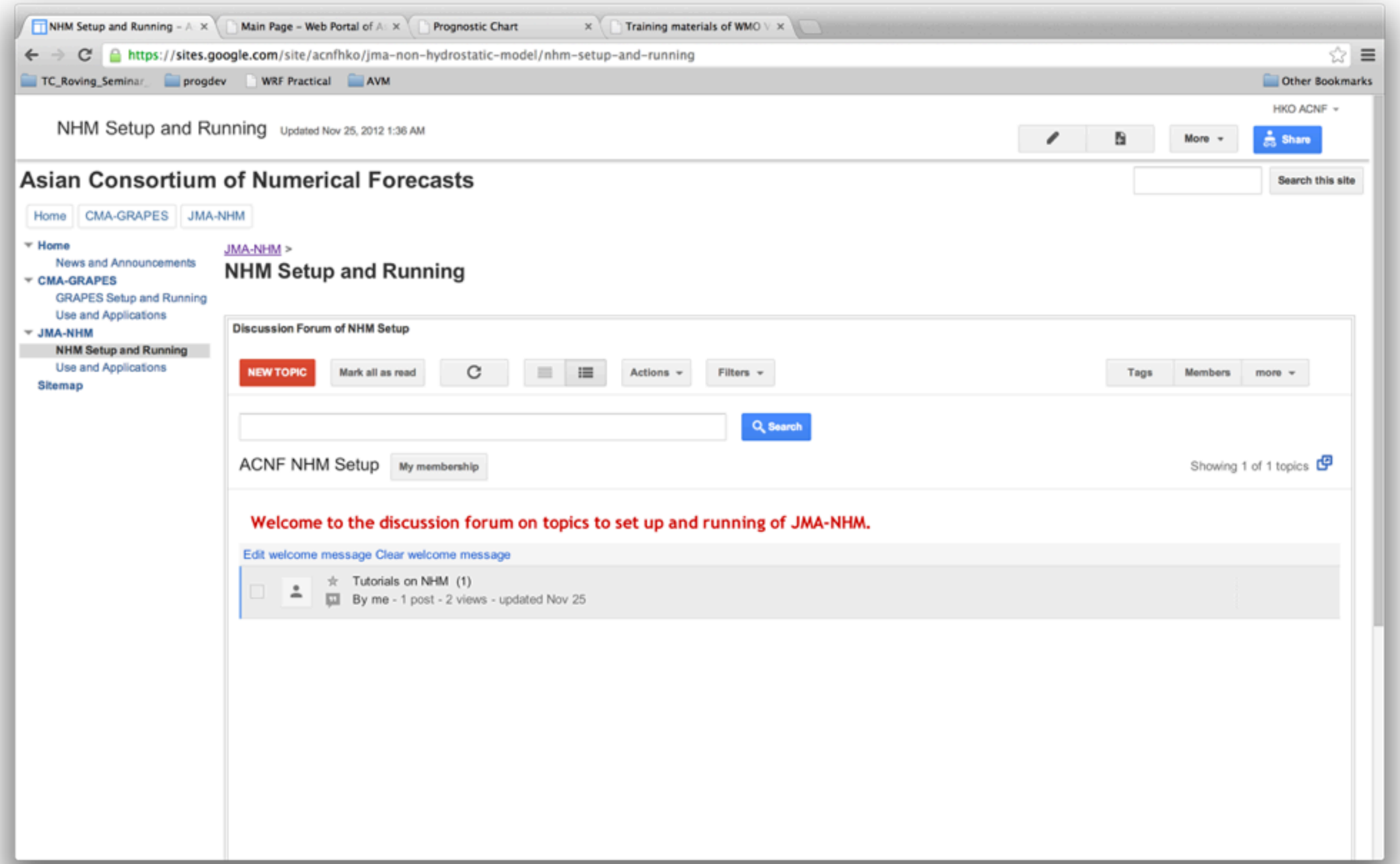
Reference

- Training Materials of WMO VCP Training Workshop on the Latest Developments on the Use and Interpretation of Numerical Weather Prediction (NWP) Models
- Post-processing Techniques and Software

What's New

- Announc
- News ar

On-line Discussion Forum



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Thank you very much