

# Tutorial Workshop

## PROGRAMME

### ***Day 1 : Thursday 13 Mar 2014***

#### **Topic | Lead | Contents**

09:00-09:10-**Welcome** | **Director NCMRWF: Beth Ebert, Rajagopal,Gopal Iyengar, Raghu Ashrit** | Brief Inauguration

09:15-09:30-**Introductions** | **Beth Ebert and Raghu Ashrit** | Housekeeping, trainers and tutorial students introduce themselves

09:30-10:30-**Introduction to R** | **Tara Jensen** | Brief introduction to R and a series of exercises focused on data manipulation and verification tools

10:30-11:00-Break

11:00-12:30-**Verification basics** | **Barb Brown** | Basic statistics review; joint distribution of forecasts and observations; graphical methods for displaying the joint distribution and verification results

12:30-13:30-Lunch

13:30-15:00-**Verification of continuous variables** | **Martin Gober** | Scatter plots, bias, MAE, RMSE, correlation, reduction of variance; skill scores for continuous variables

15:00-15:30-Break

15:30-17:00-**Verification of categorical variables** | **Martin Gober** | Why categorize? - contingency tables and scores, with interpretation

17:00-17:30-**Introduction to projects** | **Laurie Wilson** | Projects will be assigned in advance using datasets obtained from participants. All projects will be supported by a clear list of instructions

### ***Day 2 : Friday 14 Mar 2014***

9:00-11:00-**Probability and ensemble verification** | **Laurie Wilson** | Probability definition; concepts of reliability, discrimination; resolution; base rate; sharpness; scores; verification methods for EPS output; measures applicable to seasonal forecasts

11:00-11:30-Break

11:30-13:00-**Statistical Inference** | **Barb Brown** | Confidence interval estimation - traditional and bootstrap methods; block bootstrap; inference

13:00-14:00-Lunch

14:00-15:30-Project time

15:30-16:00-Break

16:00-18:00-Project time

**Day 3 : Saturday 15 Mar 2014**

**Topic | Lead | Contents**

09:00-10:30-**Spatial forecast verification | Beth Ebert** | Why spatial verification; four types of methods; survey of methods with suggestions on their use and illustrative examples

10:30-11:00-Break

11:00-12:30-**Operational verification systems | Pertti Nurmi** | Illustrative examples of existing operational verification systems and how to set them up

12:30-13:30-Lunch

13:30-14:00-Review and wrap up | Questions and review

14:00-18:00-Break and project time

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