

# Concept Note

## International Conference on Promoting Weather and Climate Information for Agriculture and Food Security

7 to 9 April 2014  
Antalya, Turkey

### Introduction

Global food security, which is linked to a wide array of agriculture and water supply systems as well as natural ecosystems, is under constant threat from weather and climate extremes and will face greater challenges from a changing climate in the 21st Century. The agriculture sector is subjected to a complex series of demands which include: producing more and higher quality food while using less water per unit of output; protecting the health of the ecosystem; and, contributing in a productive way to agricultural and economic sustainability. However, food shortages, famine, and hunger still exist as the farming communities of the world try to cope with a changing climate and the increasing frequency of natural hazards that threaten the security and sustainability of both water and agricultural resources. In October 2010, the Food and Agriculture Organization of the United Nations (FAO) estimated that 13.6% of the world population (nearly 1 billion people, or 1 in every 7 people) was malnourished, and the number increases by 10 million a year. The agriculture sector must not only increase food production but also produce more nutritious food for a growing world population, which is expected to increase from 7 billion to about 9 billion by 2050.

Climate is impacting agriculture and global food security in every part of the world. Many of the poorer people of the world live by subsistence farming which is dependent on the weather. Moreover, the production of food and agricultural products generally consumes 70% of the freshwater supply of rivers and aquifers worldwide (FAO). Constraints on a stable food supply are increasing due to water scarcity, poor water quality, and significantly increasing competition for water by urban, industry and energy sectors. The increased frequency of drought, observed over the last 20 years in eastern Africa, is likely to continue with any amount of climate change in the future, posing even greater risks for an estimated 17 million people in the region. However, weather and climate extremes also have significant impacts on agricultural production in the major developed countries of the world, propagating through the countries' exports, imports, and grain stocks, and greatly affecting global food prices. The combination of extreme weather and rising demand has wreaked havoc on crops, leading to surges in commodity prices in the past few years. Severe drought in Russia in 2010 resulted in massive grain crop failure. The worst drought in 50 years over northern China, as well as flooding in portions of China in both 2010 and 2011, cost over \$50 billion U.S. dollars and drove up global grain prices. Australia experienced an unrelenting drought from 2004 until devastating floods struck early in 2011 which cost farmers nearly \$1 billion U.S. dollars in harvest losses. In 2009, the worst drought in half a century turned Argentina's once-fertile soil to dust and pushed the country into a state of emergency. Record heat and dryness in 2012 in the United States reduced U.S. corn production and increased corn prices by more than 50% over early-season prices.

The impacts of natural hazards and extreme events on agriculture and forestry have created increased demands for timely and relevant information for appropriate decision making. Advances in science and technology have improved the accuracy of both short-term and seasonal forecasting capabilities, knowledge-based decision support systems, and information and communication technologies. As a result, effective measures for improved eco-farming, and, preparedness and mitigation strategies have become more readily available to assist the agricultural sector with better means of implementing resiliency to promote agricultural

sustainability. While it is not possible to prevent the occurrence of natural hazards, effective use of weather and climate information as an aid to management practices can considerably reduce the potentially disastrous consequences through proper planning and preparedness strategies. Accurate and timely prediction of potential natural hazards and appropriate measures to reduce their impacts on the agricultural sector can be effective tools to reduce vulnerability associated with natural hazards.

In many countries, the National Meteorological and Hydrological Services (NMHSs), in partnership with academic and private sector service providers, have initiated innovative information and advisory services that have significant impact on agricultural production and food security. In order to meet the food, fodder, fibre and renewable agri-energy needs of rapidly growing populations, especially in developing countries, information generated by the NMHSs is a vital element for ensuring the sustainable use of natural resources. Thus, the new emphasis must be placed on improving awareness in the farming community, especially in developing countries, of the available and relevant weather and climate information resources and their potential value to farm management. Many developing countries lack the capacities and specialized competencies to deliver timely and relevant information services to meet the needs of the farming community. The growing sense of urgency for continued but closer collaboration between the farming community and NMHSs has been highlighted. This collaborative process must move forward more aggressively, with effective risk coping strategies, to maximize the benefits of weather, climate and water information in the agricultural sector.

It is with this background that WMO and the Turkish State Meteorological Service (TSMS) propose to organize, jointly with several co-sponsors, an International Conference on Promoting Weather and Climate Information for Agriculture and Food Security. The conference will be held from 7 to 9 April, 2014 in Antalya, Turkey, in conjunction with the 16th Session of the Commission for Agricultural Meteorology of WMO (10 to 15 April 2014).

#### Specific Objectives of the Conference

- To identify and assess the weather and climate information needs and limitations in different regions of the world which affect farming and agriculture sector management and decision-making in each region;
- To review and summarize various weather and climate services currently available for the agricultural sector, including monitoring, forecasting and preparedness measures for on-farm operational decision-making, agrometeorological adaptation strategies to cope with climate extremes, variability and change, agroclimatic zoning for planning cropping systems, and changing land-use strategies,
- To evaluate the current means of communication of various weather and climate information and services to the farming community in different regions of the world, and, provide ways and means to implement new and/or appropriate tools for dissemination of timely and relevant weather and climate information, and;
- To promote new and innovative techniques for better awareness and utilization of climate informational knowledge for agricultural decision-making.

## Expected Outcomes of the Conference

Senior experts in several fields will be invited to prepare state-of-the-art discussion papers to address the above objectives, and these papers will be collected for guidance material to be published soon after the Conference. The programme will be designed in such a way as to engage all the participants in discussions on each of these papers and to develop appropriate strategies to address the provision of better weather and climate information for the agricultural community. The guidance material on improving weather and climate services is expected to serve as a major source of information to all agencies and organizations involved with designing and implementing appropriate strategies and related services to farmers.

Recommendations from the Conference will be considered at the ensuing session of the Commission for Agricultural Meteorology of WMO and to the Global Framework for Climate Services for promoting weather and climate information provided by the NMHSs and other partners to the agricultural community for improving agricultural production and food security.

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