Training on Seasonal Climate Forecast: enabling a more informed climate related risk management and services.

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Mediterranean climate is characterised by a large spatiotemporal variability: synoptic to mesoscale spatial variability, and inter-seasonal and multi-decadal to centennial time variability. Climatic variability and related risks affect water availability, and as a matter of fact, an increasing water scarcity will have an impact at the global level on different economic sectors and on food security. This framework calls research centres, government agencies, businesses, and end-users to challenge and find new and innovative ways to interpret, apply and disseminate climate information for Decision Making (M. B. Soares, S. Dessai 2016). Seasonal to inter-annual hydro-climatic predictions in the Mediterranean region is an opportunity to develop a proactive approach towards water management. In 2009, World Climate Conference-3 acknowledged Capacity Development as a transversal component underpinning all the other Pillars of the Global Framework for Climate Services. Within the World Meteorological Organization (WMO) Education and Training Programme, Regional Training Centers (RTC) play a major role in supporting member countries in the development of operational Climate Services. Since 2014, CNR-Ibimet as Regional Training Center (RTC) Italy in agreement with WMO and member countries of Region I-VI, has identified seasonal climate forecasts (SCF) in the Mediterranean region as a strategic issue for capacity building in the target Countries to mitigate the effects of extreme events such as drought, desertification and famine especially in semi-arid regions of North, West and East Africa. In this framework, the training activities carried out by CNR-Ibimet as WMO-RTC are to build the capacity to transform meteo-climatic information into useful and practical knowledge for specific users, such as national hydro-meteorological service staff, to support specific risk mitigation strategies. From 2014 to 2016 RTC Italy adopted different training solutions, to meet learning goals and user needs. The evolution of training solutions and the satisfaction of trainees' expectations, encouraged WMO and CNR-Ibimet to widen the spectrum of beneficiaries and to make the courses content available for other regions and other RTCs as a distance learning course package. The set of online resources provide theoretical and practical knowledge on seasonal forecast and predictability models, climate and data analysis, forecast verification, and specific application of seasonal forecast for agriculture and water management. The course packages have been developed following a process-based approach to developing instructional content (Hess, A. K. N., & Greer, K. - 2016) by adapting training materials of the previous courses into a digital learning environment. Slide presentations, videos, documents, and webinar create an engaging learning experience and reach the learning objectives. In order to meet the heterogeneous competence levels of the learners, each course illustrates the prerequisites and propose external resources to fill knowledge gaps. To allow the widespread of the training content, as capacity building is enabler to the use of SCF in organisations, the Ibimet training team developed an ebook with essential guidelines to facilitate the course adoption or adaptation by different institutions; moreover any institution to fulfill regional or institutional education needs and standards can request the content in editable format so to integrate or modify the training materials.