EMS Annual Meeting Abstracts
Vol. 16, EMS2019-57, 2019

Concept of Impact Based Forecasts for the Canadian Armed Forces

David Degardin, Marie-France Turcotte, and James Prime
Environment Canada and Climate Change, Aviation and Defence Services, Canada

Within the frame of its mandate, the Environment Canada and Climate Change's Applied Development Cell, which provides support to the Joint Meteorological Centre, has defined a project to meet the Canadian Armed Forces' (CAF) needs, for environmental forecasting (meteorological and oceanographic) and the related impacts on their operations. Operations lead by CAF are multidisciplinary by nature, cover a wide variety of geographical areas and can span variable durations. They are prepared in advance and are refined as additional information becomes available. These aspects constitute a challenge regarding the development of a decision-support tool that meets the various requirements associated with these missions from the initial planning to the final deployments. Both the Meteorological Service of Canada transformation initiative and the "data centric approach" promoted by the Canadian Forces Weather and Oceanographic Service have inspired this situational awareness project, called Consolidated Weather Impact Chart (CWIC). Based on the concept of a seamless suite of systems providing a seamless suite of data, post-processing of deterministic and probabilistic models outputs in their respective fields of excellence, are applied to create "on demand" consolidated weather impact charts. The inclusion of probabilistic outputs aim to provide the user a tool with information of likelihood and impact for a specific mission/operation. Both the National Severe Weather Warning Service weather impact matrix developed by the UK Met Office, which combines likelihood and impacts and the Extreme Forecast Index (EFI) formulated by ECMWF, which characterize the abnormality of forecasted events with respect to the model-climate, have been used for deriving probabilistic versions of the CWIC project. Preliminary results have highlighted its high potential capability to bring support for a wide spectrum of customers' needs due to the integration of adjustable thresholds since the initial project concept. The expected final delivery of this project aims to offer a smart, dynamic, and user-friendly access to a database of state-of-the-art numerical environmental predictions through multiple communication media such as internal webpages or by taking advantage of either GIS or web-service capabilities. Thereby, end users will be able to produce, on-the-fly, tailored decision-aiding products by manipulating relevant fields in order to take into account the known vulnerabilities for a given situation. This presentation aims to expose and share the concept that will stimulate feedback and discussions in order to move forward more confidently.