Geophysical Research Abstracts
Vol. 19, EGU2017-7924, 2017
EGU General Assembly 2017

Forecasting European Wildfires Today and in the Future

Maria Navarro Abellan (1), Ignasi Porras Alegre (1), Josep María Sole (1), Pedro Gálvez (1), Conrad Bielski (2), and Pertti Nurmi (3)

(1) Meteosim S.L., Barcelona, Spain, (2) EOXPLORE UG, Weil am Rhein, Germany , (3) Finnish Meteorological Institute, Helsinki, Finland

Society as a whole is increasingly exposed and vulnerable to natural disasters due to extreme weather events exacerbated by climate change. The increased frequency of wildfires is not only a result of a changing climate, but wildfires themselves also produce a significant amount of greenhouse gases that, in-turn, further contribute to global warming.
I-REACT (Improving Resilience to Emergencies through Advanced Cyber Technologies) is an innovation project funded by the European Commission , which aims to use social media, smartphones and wearables to improve natural disaster management by integrating existing services, both local and European, into a platform that supports the entire emergency management cycle.
In order to assess the impact of climate change on wildfire hazards, METEOSIM designed two different System Processes (SP) that will be integrated into the I-REACT service that can provide information on a variety of time scales.

SP1 - Climate Change Impact
The climate change impact on climate variables related to fires is calculated by building an ensemble based on the Coupled Model Intercomparison Project Phase 5 (CMIP5) and CORDEX data. A validation and an Empirical-Statistical Downscaling (ESD) calibration are done to assess the changes in the past of the climatic variables related to wildfires (temperature, precipitation, wind, relative humidity and Fire Weather Index). Calculations in the trend and the frequency of extreme events of those variables are done for three time scales: near-term (2011-2040), mid-term (2041-2070) and long term (2071-2100).

SP2 – Operational daily forecast of the Canadian Forest Fire Weather Index (FWI)
Using ensemble data from the ECMWF and from the GLAMEPS (multi-model ensemble) models, both supplied by the Finnish Meteorological Institute (FMI), the Fire Weather Index (FWI) and its index components are produced for each ensemble member within a wide forecast time range, from a few hours up to 10 days resulting in a probabilistic output of the FWI for different regions in Europe.

This work will improve the currently available information to various wildfire information users such as fire departments, the civil protection, local authorities, etc., where accurate and reliable information in extreme weather situations are vital for improving planning and risk management.