

November 5th LECTURE

Simulating extreme hydro-meteorological events with DRIHM(2US) services



Antonio Parodi
CIMA Foundation

Abstract

From 1970 to 2012, about 9000 High Impact Weather Events (HIWE) were reported globally: all together, they caused the loss of 1.94 million lives and economic damage of US\$ 2.4 trillion (2014 UNISDR report). Storms and floods accounted for 79 per cent of the total number of disasters due to weather, water and climate extremes and caused 55 per cent of lives lost and 86 per cent of economic losses. Predicting high impact weather events (HIWE) is still one of the main challenges of the 21st century, with significant socio-economic implications.

At the heart of this challenge, lies the ability to access hydro-meteorological data and models and to facilitate the collaboration between meteorologists, hydrologists, and Earth science experts for accelerated scientific advances in hydro-meteorological research (HMR). The EU funded DRIHM (Distributed Research Infrastructure for Hydro-Meteorology) and DRIHM2US (Distributed Research Infrastructure for Hydro-Meteorology to US) projects developed a prototype e-Science environment to facilitate this collaboration and to provide advanced end-to-end HMR services (models, datasets and post-processing tools). The DRIHM(2US) services will be presented and demonstrated for the Genoa 2014 flash-flood event.

Short Bio

Expert in atmospheric modelling and statistical analysis of extreme events, in the development of simplified models of dry and moist convection and the study of the main sources of uncertainty in the high resolution numerical modelling of deep moist convective processes (COSMO-MODEL and WRF-ARW model). Awarded with a CNR-MIT grant in 2002 in the framework of the bilateral USA-Italy investigations on climate change and hydrogeological disasters. Since 2003 has developed teaching activities at the University of Genova in the following fields: Hydraulics, Fluid Mechanics, Dynamics of Atmosphere and Computational methods in Environmental Engineering. Coordinator of FP7 projects DRIHMS (Distributed Research Infrastructure for Hydro-Meteorology Study, www.drihms.eu, 2009-2011), DRIHM (Distributed Research Infrastructure for Hydro-Meteorology Study, www.drihm.eu, 2011-2015) and DRIHM2US (Distributed Research Infrastructure for Hydro-Meteorology Study to United States of America, www.drihm2us.eu, 2012-2014). Antonio Parodi is author and co-author of 34 papers published in international peer-reviewed and referred journals.