Natural Hazards
and Earth System
Sciences

Open Access

Discussions

Interactive
Comment

Interactive comment on "Developing an index for heavy convective rainfall over a Mediterranean coastal area" *by* M. Korologou et al.

M. Korologou et al.

marina.korologou@gmail.com

Received and published: 15 May 2014

I would like to thanks the Referee for his/her time and his/her valuable comments.

Among the great hazards that affect Greece are flash flood events caused by severe thunderstorms that were associated with heavy rainfall. Taken into account the catastrophic consequences of these phenomena, the need for a successful forecast is self-evident.

As an operational hydrometeorologist, I am dealing with this challenge often. The main product that the state of the art numerical weather forecasting is offering is the EFI (Extreme Forecast Index). An indicative case for the specific area is the deadly flash flood manifested on 15th of September 2008. The EFI issued less than 12 hours

before, did not include any precipitation warning at all (see figure). The proposed index issued just 12 hours before, gave timely warning.

While developing the index was found that there was a lot of missing observation data. We had to fill these gaps with respect to the needs of our study. We chose different methods for temperature and relative humidity. We used qualitative estimation for the humidity because in our disposal was satellite images (a combination of the SEVIRI IR3.9, IR10.8 and IR12.0 channels). For temperature we used the Acock methodology that looks chaotic but it's appropriate and generally accepted with satisfactory results. Of course if the data were available there will be no need for this session. We chose to be honest and share this problem and the method for solving it. Our aim was not to make the study chaotic or complicated but there was a need.

The specific natural hazard we are investigating i.e. flash flood is inherently based on thresholds. Thus, the corresponding modeling has to be based on thresholds as well. The qualitative choices/techniques that have been implemented/ applied are part of our proposed methodology. We argue that is far most rational, scientific and in this case effective when building a hypothesis to be guided from theory, governing laws and experience rather to be arbitrary (reach versus poor explanatory framework). We agree that this increases complexity and reduces readability but simplicity is *a nice to have* and not *a must have*. The aim of this manuscript is to document and share a *best practice* for dealing with the prediction of a deadly natural hazard namely the flash flood.

Regarding specific comments, most of them are common with the comments of the first referee. All of them are accepted and the manuscript will be revised accordingly. The last comment is about clarifying a basic logical operator namely *conjunction*. We propose not to take any action about this because it looks trivial. ($www.wikipedia.org/wiki/Logical_conjunction$)