

## [Comparing methods for the approximation of rainfall fields in environmental applications](#)

### **Publication Type:**

Report Series

### **Authors:**

[G. Patané](#); [A. Cerri](#); [V. Skytt](#); [S. Pittaluga](#); [S. Biasotti](#); [D. Sobrero](#); [T. Dokken](#); [M. Spagnuolo](#)

### **Source:**

IMATI Report Series, CNR-IMATI, Number 16-10, Genova, p.26 p. (2016)

### **URL:**

<http://irs.imati.cnr.it/reports/irs16-10>

### **Keywords:**

[Precipitation analysis](#), [Storm tracking](#), [Surface approximation](#)

### **Abstract:**

Digital environmental data are becoming commonplace and the amount of information they provide is huge, yet complex to process, due to the size, variety, and dynamic nature of the data captured by sensing devices. The paper discusses an evaluation framework for comparing methods to approximate observed rain data, in real conditions of sparsity of the observations. The novelty brought by this experimental study stands in the geographical area and heterogeneity of the data used for evaluation, aspects which challenge all approximation methods. The Liguria region, located in the north-west of Italy, is a complex area for the orography and the closeness to the sea, which cause complex hydro-meteorological events. The observed rain data are highly heterogeneous: two data sets come from measured rain gathered from two different rain gauge networks, with different characteristics and spatial distribution over the Liguria region; the third data set come from weather radar, with a more regular coverage of the same region but a different veracity. Finally, another novelty of the paper is brought by the proposal of an application-oriented perspective on the comparison. The approximation models the rain field, whose maxima and their evolution is essential for an effective monitoring of meteorological events. Therefore, we adapt a storm tracking technique to the analysis of the displacement of maxima computed by the different methods.

 [16-10.pdf](#)