

# Towards an integrated hail database: a comparative study of different sources of information in Catalonia

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## I. INTRODUCTION

This study presents a comparative analysis of different sources of information about hail data in Catalonia (NE of Spain). In order to obtain a complete hail climatology such as that reported by Giaiotti et al. (2003), a detailed description of hail occurrence (date and time), size and density distribution, and extension of affected area in the region of interest are ideally needed. The different sources of information are listed and characterized in a first section, meanwhile in the second section are showed the results obtained using hail data reports during 2008.

## II. DATA SOURCES

Five sources of information of hail observations were examined covering the year 2008. The advantages and limitations (spatial and time resolution, arriving time, size information, etc.) of the different sources are discussed in this section. The five data sources were:

1) Visual observations reports, obtained mainly from the Meteorological Service of Catalonia spotter network (Figure 1), a preliminary analysis of these sources of information indicates that the geographical distribution of the visual observation reports is very irregular and largely biased towards densely populated areas.

2) Mass media information, obtained from newspapers and Catalan public television TVC. This information is not always very precise but can be very helpful to detect the occurrence of important hailfall events and their impact.

3) Hailpad network data. This network is placed in Western Catalonia and provides the most complete description of hail characteristics, but in Catalonia it is restricted to a very small agricultural area.

4) METAR and SYNOP observations obtained from nine stations operated in Catalonia by the Spanish Meteorological Agency (AEMET). They provide high quality information with good temporal resolution but with limited spatial resolution.

5) Hail data provided by the AEMET secondary observation network operated by volunteers. This network is rather dense and allows comparisons with traditional hail day climatologies but time resolution is somewhat limited.

6) Radar-based probability of hail (POH) product (Aran et al 2007), which provides a high temporal and spatial resolution, but requires a calibration with ground information and its performance may vary with each hail event.

## III. RESULTS

From the different sources described above more than 700 hail reports were obtained (Fig. 1). More than 90 days with hail data were reported; the monthly distribution is

showed in Fig. 2.

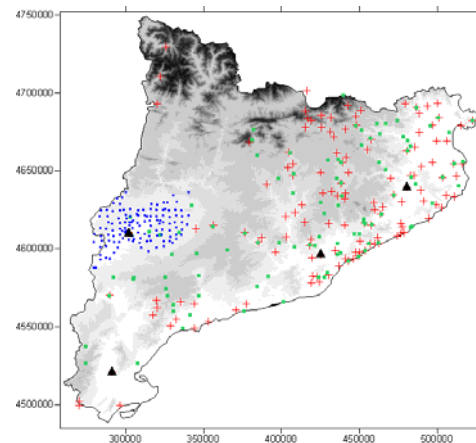


FIG. 1: Hail data report locations during 2008. Blue squares (hailpad network data), red crosses (visual reports and mass media information), black triangles (METAR and SYNOP observations) and green circles (AEMET secondary observation network).

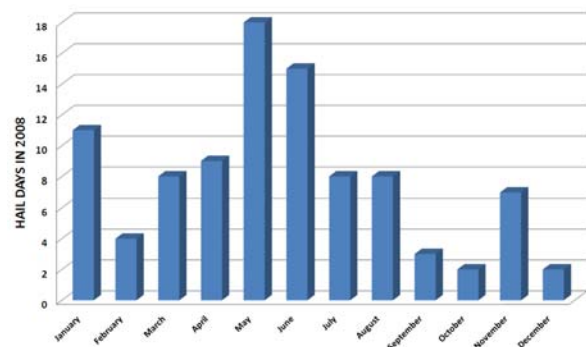


FIG. 2: Monthly distribution of hail days during 2008.

## IV. ACKNOWLEDGMENTS

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## V. REFERENCES

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