SINOBAS, a tool for collaborative mapping applied to observation of “singular” weather phenomena
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WHAT?
SINOBAS stands for the Spanish words for “System for reporting singular atmospheric observations” and is also a tribute to one of the first scientists involved in studying the atmosphere in Spain in the 19th century, Don Manuel Rico y Sinobas. It is a Volunteered Geographic Information (VGI) system developed at AEMET, based on Google maps and free software, aimed to facilitating citizens reporting in weather events and building up a data base of phenomena that we have named as “singular”, meaning:

- local (not extended over a wide area),
- infrequent (not happening frequently),
- of significant intensity and
- with a potential to cause high social impact.

Information introduced by users is subsequently validated by AEMET.

HOW?
Introducing a report in 3 steps:

1. **Twitter area:**
   - Registration & identification. Types of users:
     - Unregistered (can see the information)
     - Registered (can add reports)
     - Partner association (associated amateur meteorologists)
     - Privileged users (AEMET personnel in charge of validation)
     - Super-users (management and administration)

2. **Details of a report:**
   - Highlighted reports:
     - Interest of the event and/or
     - Well documented
   - Multi-reports: more than one report of a single event

3. **Twitter account:**
   - Aimed to popularizing the system among weather enthusiasts and media
   - Automatic tweets of new reports/information added to a report/validation of a report
   - Automatic tweets of orange and red level weather warnings
   - Subjective tweets and retweets of weather information: daily situation, news, curiosities, etc.
   - Open to interaction when questions or information of interest arises from mentions or other tweets.

RESULTS?

- 531 reports since start in April 2013, 75% of them considered of high reliability
- Distribution of types of phenomena reported:
  - Tornado/Water spout: 17%
  - Gustnado: 18%
  - Dust devil: 27%

- 633 registered users.
- 12 partner associations.
- 7804 tweets and 3139 followers since launching of @AEMET_SINOBAS in March 2014.
  (Data until September 1, 2015)

CONCLUSIONS?

- System of particular interest for amateur meteorologists, and a good example of what is called “citizen science” or “crowd-sourced science”. It is also a way of popularizing meteorological phenomena.
- System’s twitter account provides a very prompt communication channel with the public. It is also a very effective way of popularizing the system and strengthening relationships with amateurs.
- Activity of @AEMET_SINOBAS is of particular interest for nowcasting, because it can provide our forecasters a very fresh and enthusiastic input about existing weather conditions, particularly when significant weather phenomena happen. It can be followed from the system’s “Twitter” tab on the web site.
- Main difficulty to get an event reported is that the system requires the user to visit our website, register and fill a form. The public prefers the immediacy of a tweet. Part of the work of the management team is to get some tweets turned into reports, either by the public or by AEMET staff.