SINOBAS, a tool for collaborative mapping applied to observation of "singular" weather phenomena
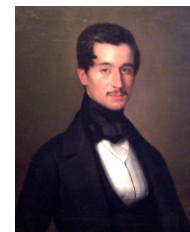
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WHAT?

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 collaboration in reporting 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:

Twitter area:

Details of a report:

Highlighted reports:
➜Interest of the event and/or
➜Well documented

Multi-reports: more than one report of a single event

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.

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)

Definition of each phenomenon and, if necessary, **threshold values** required to consider it as "singular", available through:
➜*Pop-up* windows
➜F.A.Q.
➜A Guide of phenomena

Types of phenomena:
Tornado/Water spout
Gustnado
Dust devil
Funnel cloud
Downburst/Gust fronts
Heatburst
Slope wind
Severe hail
Flash flood
Heavy snowfall
Snow avalanche
Freezing rain
Unusual maritime phenomena

Reliability of reports:
➜*Non-validated*
➜Low reliability
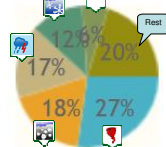➜Medium reliability
➜High reliability
➜Validation impossible

You can **filter** reports shown:
➜By phenomena
➜By level of reliability
➜By date

RESULTS?

➜**531 reports** since start in April 2013, 75% of them considered of high reliability.
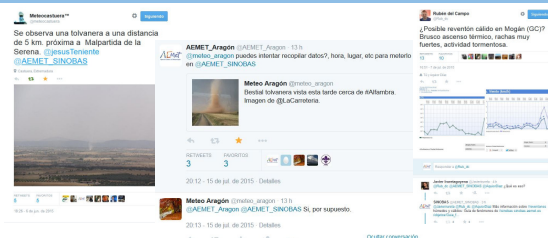
➢ Distribution of types of phenomena reported:

➜**633 registered users**.

➜**12 partner associations**.

➜**7804 tweets** and **3139 followers** since launching of **@AEMET_SINOBAS** in March 2014.

(Data until September 1, 2015)

Some interactions and news through our twitter account

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.

Website: **sinobas.aemet.es**   Email: **sinobas@aemet.es**   Twitter account: **@AEMET_SINOBAS**