Storm naming: the First Season of Naming by the South-west Group: Spain-Portugal-France

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Introduction

Following the success of storm naming by MetEireann and the Met Office in 2016-2017 (cf WGCEF Task Team on Storm Naming in Europe ; Authors Cusack, Paterson, Lang, Csekits, WGCEF newsletter N°22), three other countries in the south-western part of Europe - Spain, Portugal and France - decided to join the process of storm naming, following recommendations of the Task Team.

System specifications were discussed by partners during the year 2017 via mail exchanges, then webconferences during Autumn 2017 allowed the Group to finalise the process of storm naming for the southwest. The month of November was then used as a blank test, before the system entered its operational phase in December 2017, for the winter season of 2017-2018.

Principle of storm naming

The following principles of naming were applied :

• A depression will be named only if at least an orange warning is expected for wind speed or wind

gust associated with the passage of a storm or low pressure (regional winds such as the Mistral are not taken into account).

• Area: Atlantic Ocean and western Mediterranean Sea.

• The NMS who first issues an orange/red warning (or Vigilance) names the storm and informs the three others.

• A named Storm keeps the same name its whole life.

The coordination with the North-west Group is crucial to ensure that the same storm gets a single name. If a storm is named by one group and moves to the other group, it keeps the same name. In the rare cases where a barotropic storm is a post-tropical storm, it keeps the name given by NHC Miami preceded by 'Ex'. Notice that this procedure was used by Met Eireann in October 2017 with Ex-Hurricane Ophelia.

Emails are favoured for exchanging information between the National Meteorological Centres, but direct phone calls between operational forecasters are possible if needed. The following form is used by the first NMC who name a storm, to inform the NMCs partners.

PROPOSED NAME		FORECASTED LOW CENTRE LOCATION (at first orange/red wind warning	Latitude (in decimal	s)		
		onset time)	Longitude (in decimals)			
FIRST WIND WARNING ISSUING	DATE (YYYYMMDD)	FIRST WIND WARNING	DATE (YYYY	MMDD)		
	TIME (HH:MM CET)	ONSET	TIME (HH:MM CET)			
MAXIMUM WIND WARNING LEVEL	Orange	OTHER ORANGE/RED	Rain		Coastal event	
	Red	WARNINGS ISSUED	Snow		Others	
REMARKS						
WARNINGS WEBSITES	Météo-France: http://vigilance.meteofrance.com/ IPMA: https://www.ipma.pt/en/ AEMET: http://www.aemet.es/en/eltiempo/prediccion/avisos Meteoalarm: http://www.meteoalarm.eu/index.php?lang=en_UK					

STORM NAMING COORDINATION FORM (SW GROUP)

Naming list winter season 2017-2018 of the SW group Ana-Bruno-Carmen-David-Emma-Felix-Gisele-Hugo-Irene-Jose-Katia-Leo-Marina-Nuno-Olivia-Pierre-Rosa-Samuel-Telma-Vasco-Wiam



Case study of the first named storm 'Ana'

'Ana' was named by AEMET on the 8th of December 2017 with a forecast position of a deep low pressure (964 hPa) in the Bay of Biscay, south-west of Brittany, on the 11th of December 2017 00UTC. This storm affected the three countries of the South-west Group.

France

An orange warning was issued, not only for winds, but also for other parameters connected to the storm: snow, coastal events, heavy precipitation and avalanches (in the Alps). Having a named storm meant all these parameters could be connected to the storm, making the Vigilance more understandable for the public.

Spain

A "Special Warning" mentioning Ana was issued on the 8th of December along with more than 30 orange warnings, but on the 11th of December the situation ended with half of Spain under orange warnings and with 16 red warnings (3 for precipitation). Wind gusts were over 120km/h, and not only in mountain or coastal stations. In Galicia, precipitation was very persistent, with more than 80 mm in 12 hours almost everywhere, and up to 160 mm in 24 hours in many places. The main impacts were the closure of two big sea ports, Tarifa and Algeciras, and the large number of incidents, 260 in Galicia alone. The concept of storm naming had a warm welcome in Spain, becoming front page news in all important media. On the downside, flight cancellations in Europe were attributed to Ana in some media, even before it was formed.

Portugal

A red warning was issued for wind and an orange warning was issued for heavy precipitation, snow and coastal events. There were significant damages caused by the wind, with 144 km/h gusts reported, and red warning levels of precipitation were observed. On Madeira Island, orange level winds were observed when the winds veered northerly on the passage of the cold front, with wind gusts exceeding 90 km/h. After a long draught period, naming this low helped communicate to the media and public the important change in the weather pattern and the strong effects it caused.



Other storms of the season Storm Bruno 2017/12/26

Storm Bruno mostly affected France with gusts up to 120 km/h in Brittany (orange warning) and north of Spain, with gust up to 110 km/h (orange warning). In Portugal an orange warning was issued for wind and coastal events, with gusts rising up to 115 km/h on the passage of the cold front associated with this low.

Storm Carmen 2018/01/01

An orange warning was issued in France. The cold front associated with the storm was very unstable – a wind power generator was destroyed by the localised tornadoes which occurred.



In Portugal, an orange warning was issued for coastal events and yellow level (74 km/h) wind gusts were observed at the extreme north of the coastal area of the country.

In Spain an orange warning was issued for the mouth of the river Ebro (90 km/h).

Storm David 2018/01/17

This low crossed England, but was not named by the Met Office as the impact of the storm was not expected to reach orange warning thresholds there.

The low was named by Meteo-France due to an orange Vigilance being required for the extreme north of France. The storm deepened quickly in the North Sea, resulting in the greatest impacts being seen in Belgium (orange warning), and the Netherlands (red warning). David's path was too high in latitude to affect Spain and Portugal.

Storm Eleanor 2018/01/02

This storm was named by Met Eireann, but also had a great impact in France (bringing strong winds, heavy rainfall and leading to coastal destruction in the Channel). The name was widely used by media.

Storm Emma 2018/02/26

This was a long lived storm with strong impacts, named by the Azores Regional Department of IPMA. It had a forecast position at 41N 36W on the 26^{th} February 2018 at 00UTC, with a central pressure of 965 hPa - requiring an orange warning for the wind on the passage of the cold front. On the 27th February, this frontal system crossed mainland Portugal, with significant damage to trees caused by freezing rain (a very rare phenomenon in Portugal) and disruption to car traffic caused by snow fall. Later, Emma moved eastward, filling to 979hPa over the Atlantic to the west of Portugal on the 1st March, then moving northward towards the United Kingdom and Ireland. As a result of storm Emma and its associated frontal systems during this period, orange warnings were kept in force over mainland Portugal, whilst a tornado formed over the sea and entered the town of Faro on the 28th February. A red warning for wind and coastal events and an orange warning for rain was kept in force for the Madeira Islands where 140 km/h wind gusts were observed at the airport, with a significant impact to air traffic.



In France, when the warm front associated with the low moved northward on 28th February, it came up against the very cold air advected across the country in the days before by a strong Scandinavian high pressure. The result was heavy snowfall over France, especially in the Languedoc region: more than 40cm of heavy and wet snow fell near the sea and on the town of Montpellier. A red warning for snow was issued, but major disruption occurred on the A9 motorway and in the town of Montpellier.





Emma also had a great impact in Spain, with strong gust winds, up to 110 km/h, and heavy rainfall (140 mm in 24 hours in Grazalema) in the south-west. As in France, the collision of the two air masses triggered an abnormal episode of widespread snow, covering the northern half of the country, even affecting cities at sea level such as Bilbao (5 cm).

Storm Felix 2018/03/09

A vast complex low persisted over the Atlantic but a new deep low with a minimum pressure forecast of 979 hPa at 47N 24W on the 9th March at 00UTC, was named as Felix by IPMA, due to an orange warning in force for the Madeira Islands. Wind gusts of up to 150 km/h were observed across mountain areas and gusts of up to 120 km/h were observed at the airport, causing significant impacts.

In mainland Portugal, 100 km/h wind gusts were observed across the coastal region, with a red warning for coastal events and heavy precipitation being issued.

In Spain, red warnings were issued for wind gusts in the Cordillera Cantábrica and for coastal events in the west of Galicia.

Storm Gisele 2018/03/14

AEMET named Gisele, a new deep low pressure system forecast with a low centre of 968 hPa at 48N 15W on the 14th March at 06UTC (orange warnings for



wind and coastal events), a few minutes before the Azores Regional Department of IPMA took action and issued an orange warning for wind and coastal events for the 13^{th} March. Wind gusts of up to 100 km/h were observed at Graciosa Island airport.

When Gisele moved eastward, an orange warning for wind and coastal events was issued in mainland Portugal. A wind-gust of 110 km/h was observed and several meso-vortices formed, causing at least one tornado, on the passage of a very unstable cold front, on the 14th March.

Storm Hugo 2018/03/23

AEMET named Hugo, a new deep low pressure forecast with a low centre of 971 hPa at 48N 09W on the 23th March. A "Special Warning" was issued regarding the explosive cyclogenesis of Hugo. Red warnings were issued for coastal events on the north-west coast and widespread orange wind warnings were issued, with gusts of up to 120 km/h expected.

An orange warning for coastal events and yellow warning for wind and snow was issued for mainland Portugal. An orange warning level for wind was observed with wind gusts over 100 km/h at towns in the mountainous areas of central mainland Portugal.

Storm Irene 2018/04/16

The Azores Regional Department of IPMA named lrene, a new deep low pressure system, forecast with low pressure centre of 952 hPa at 49N 29W on the 16th April, due to an orange warning for wind and coastal events being issued. Wind gusts of up to 110 km/h were observed. This low then moved northward over the Atlantic.

Conclusion

The storm naming system by the South-west Group was quite successful in raising the awareness of citizens about meteorological hazards related to storms and encouraging people to follow the recommendations of the authorities.

Coordination between NMSs of both naming groups involved in storm naming was quite good, but it is important to work on a more efficient system, that does not rely on exchanging e-mails.

The existence of a pre-defined list of names known by the media and the public allows the public to guess which low is going to be named next but may produce 'fake news', for instance, when some private companies try to pre-empt the naming of a storm before the NMS does so. At the same time there is additional complexity for the public in understanding whether the named low will affect their country or not. The solution may be in making use of graphical and text tools and through the use of common communicating systems (eg. websites, social media) to reach the public in the most efficient way.

Further work and coordination are necessary before reaching a single naming system in Europe.