

# MEDIA COMMUNICATION OF EXTREME EVENTS: A CASE STUDY FOR BRAZIL

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## I. INTRODUCTION

Mass media is a powerful instrument to modify the ways of organization and implementation of the society, since it influences individual and collective perceptions, as well as political decisions (Weingart et al, 2000, Nunes, 2009). Thus, scientific community must be aware of the ways in which information is dispersed by the media, in order to contribute to convey good, useful and reliable information to the society.

Some climatic events such as floods, droughts and strong winds directly influence every person. Further, issues such as global warming, climate change and extremes of temperature have become hot topics in the global mass media (Weingart et al., 2000; Carvalho, 2007).

In Brazil, news on atmospheric phenomena increased from 11 to 473 between 1995 and 2000 (MCT, 2004). Notwithstanding, many reports are inaccurate and inconsistent, with sensationalist statements, evocative pictures and appealing and alarmist headlines (Leroux, 2005; Nunes, 2009). Therefore, it is important to evaluate the accuracy, suitability and usefulness of information spread up by the media and to understand criteria used for electing significant facts and the authorized agents to define science matters.

Information on extreme atmospheric events deserves special attention, since they can strongly impact environment and society: in 2008 only, 354 hydrometeorological disasters were registered around the world. They promoted 235,000 deaths, affected 214 million people in 120 nations and caused economic losses of 190 US millions (Cred Crunch 16, 2009).

## II. DISCUSSION AND RESULTS

The study analysed at daily basis all information on weather and climate published in 2008 in “O Estado de S. Paulo” (OESP), a traditional Brazilian newspaper, whose first issue was edited in 1879 in São Paulo.

Because readers of OESP are mainly the dominant Brazilian classes (96% classes A, B and C), topics and approaches are driven by their interests. The newspaper exerts strong influence on their readers and 90% of them are subscribers. Around 239,148 issues are released everyday but Sundays (315,614 issues) (<http://www.estadao.com.br/>).

Analyses considered both quality and quantity of the news published in the period under investigation. It was found 1,108 news along the year, 744 of them (67%) illustrated and 42 on the cover page.

The reports were classified in 13 groups according to the prevailing subject. Each one received a code, from 3 to 42 in order to identify each class (see in Figure 3): weather forecast (code 3), heat waves (code 6), cold spells (code 9), global warming/climate change (code 12), floods (code 15), droughts, (code 18), agriculture (code 21), winds (code 24),

energy (code 27), lightning (code 30), sports (code 33), pollution (code 36) and others (code 39).

Figure 1 shows that more news on weather and climate were published in November-December and May, due to two extreme events: the former covered the tropical cyclone Nargis that hit Myanmar early May and the latter was associated with the catastrophic floods and mass movements in Santa Catarina State, Southern Brazil (22 news in a single day: 27 November). In addition, the higher frequency of reports on climate and weather (i.e., the relation between news per day) were found in February - month that normally registers high totals of rainfall and consequently floods and landslides in many parts of Brazil - and May - in this case, due to an overseas event: the tropical cyclone Nargis. Less news on weather and climate were published in October.

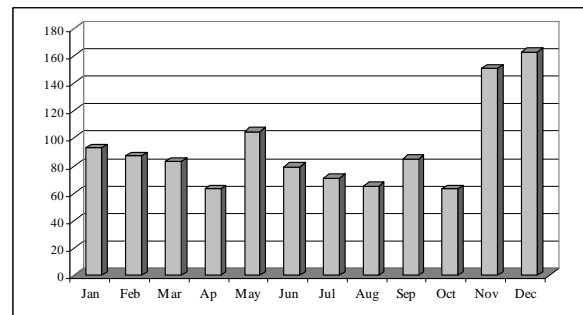


FIG. 1: Monthly distribution of news on weather and climate in OESP, 2008.

Figure 2 shows the number of reports along the year, discriminated in the 13 types (codes). Reports of weather forecast (present in all issues), floods, climate change/global warming, agriculture and winds were more frequent. However, some differences in relation to the geographical area and approaches could be identified: news of weather forecast and agriculture were related almost exclusively to Brazil; whereas reports about strong winds and their implications were concerned with other countries. News on floods refers to the consequences in Brazil and overseas and information on climate change/global warming was collected from scientific sources from Brazil and especially overseas.

As expected, Table 1 shows that most of the news concerning weather and climate published in 2008 in OESP refers to Brazilian conditions (82%). September and May have more news for other countries, both cases due to strong wind episodes: hurricanes in the Caribbean and the USA in September and tropical cyclone Nargis and tornadoes in the USA in May.

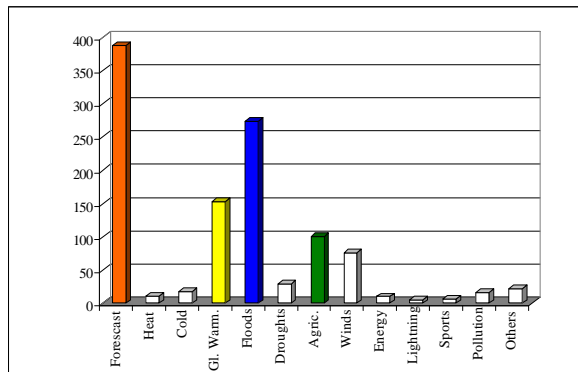


FIG. 2: Reports by main subjects in OESP, 2008.

	National	International
Jan	84	9
Feb	69	18
Mar	65	18
Apr	56	7
May	68	37
Jun	59	20
Jul	61	10
Aug	55	10
Sep	47	38
Oct	57	6
Nov	139	12
Dec	153	10
<b>Total</b>	<b>913</b>	<b>195</b>

TABLE 1: National (Brazil) and international news on weather and climate, for months.

In Figure 3 one can see that some subjects were more frequently reported, such as weather forecast (code 3) and global warming/ climate change (code 12), while some others were more seasonal, like heavy winds (code 24).

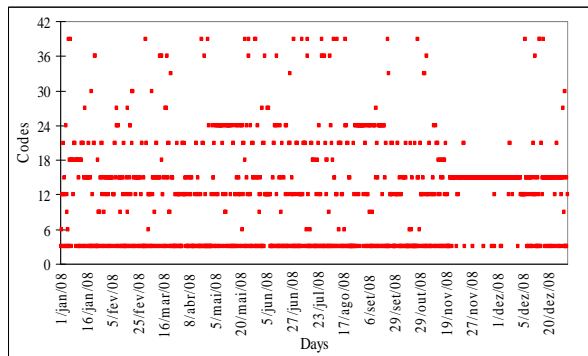


FIG. 3: Reports by main subjects in OESP, 2008.

A qualitative analysis of the published information was also performed by considering news headlines (how appealing or related to the subject they were) information correctness, illustrations appropriateness and prevailing approach (politics, economy, etc).

Although OESP is amongst Brazil's most reliable information source, appealing headlines were found several times, especially in reports of climate change/global warming. Because some reports were quite incomplete, they failed to provide consistent information. Additionally, although the large majority of illustrations were good and suitable to the theme, a few were disconnected to the subject. Some inconsistent information, misunderstandings and even mistakes were also found, such as confusion between weather and climate, and hurricanes and tornadoes.

No effort to connect similar information was found in many cases, and the translation of uncertainties in weather and climate (a known characteristic of the atmospheric processes) was inadequate, fact that might create doubts and science untrustworthy. On the other hand, OESP provided space for different opinions (for instance, pro and against global warming) and used reliable sources to provide explanation of atmospheric phenomena, such as scientific journals or explanations by scientists.

### III. CONCLUSIONS

Media plays a strategic role for citizens, since precise and timely information on climate and weather can be transformed in economic profits or losses and alert population on possible risks triggered by atmospheric situations. However, Brittle and Muthuswamy (2009) underlined that attitudes about issues such as global warming do not appear to be influenced by scientific evidence (although it should!), so that scientific community must be aware of the ways the media influences concerns about atmospheric situations.

Analysing a Brazilian newspaper, this study showed that the importance of information on weather and climate is on increase, fact that must be associated with recent concerns about climate change and global warming. Extreme events received more attention, but a geopolitical preference was identified: news of central countries (or central states in Brazil) was more frequent, while information for peripheral countries and Brazilian regions appeared only if these areas were hit by exceptional episodes (like Myanmar or Haiti).

### IV. ACKNOWLEDGMENT

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