

Attitudinal differences towards severe rainstorms in Brazil as expressed in a Social Media Service, suggest the way to apportion prevention and mitigation funding more effectively.

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I. INTRODUCTION

Brazilian landslides and flooding during rainy seasons are common. During January 2011 two severe rainstorm episodes took place in developed urban tropical areas, causing landslides and floods during the night. The differences in the reactions of these two populated areas are analyzed here from the perspective of their spontaneous messages on Facebook.

Nova Friburgo, Rio de Janeiro state, is Cfb climate in the Köppen classification, and is about 1000 kilometers NE of (continental) Florianópolis, Santa Catarina state, Cfa climate. Both are built on the steep sloped mountain range called Serra do Mar, along the Atlantic Ocean.

Social networks were an important resonance box to the victims' plight. A partnership between climatempo.com.br, the largest weather information provider in Brazil and Facebook.com created a space to post messages which provided the data for a cultural assessment of the differences in attitudes to the weather.

III. DATA AND METHODOLOGY

With the proclamation of the Brazilian Republic (1889), rent-seeking Portuguese monarchists remained the majority in control of the affairs of Rio de Janeiro. On the contrary, in Santa Catarina, in the southern tip of Brazil, control passed on to the bourgeoisie in detriment of monarchists linked to cattle ranching (Zucotto et alli, 2010, 104). The transfer of power signals the predominance of capitalist activities in the South of the Brazil. This was facilitated by the imperial government initiative from 1824 until 1889, to stimulate migrations from northern Europe and Germany particularly (Kluck, 1975, 1). These German immigrants, along with Italians ones, provided the stock of the population in the region. The concentration of European population enhanced an outward looking mentality, which triggered entrepreneurialism and a "can do" attitude which is characteristic of people who have an internal

locus of control (Lenartowics & Roth, 2001, 319). It follows that people's with a stronger sense of self-direction will not only show more initiative as well as more control over management outcomes, but will also pressure its civic representatives to ensure effective prevention and mitigation of disasters.

On the other hand, several authors report fatalist attitudes among Brazilian Northeastern poor, precisely the majority of the ones which migrated to the favelas (shantytowns) in Rio de Janeiro largely built on steep mountain slopes (Havighurst & Moreira, 1969,109 or Gomes, 2006). American State Department officials are reported to have believed that most Brazilian peasants "did not think they could help themselves" (Kirkendall, 2010, 31). Analysts of Latin American literature do not fail to see significant traits of fatalism in the work of Brazil's foremost sociologist of the Northeast, Gilberto Freyre (Balderston & González, 2004 ,478).

II. ANALISYS OF SPONTANEOUS MESSAGES POSTED

For sake of expediency the people of Florianópolis will be referred to as self-reliant and those of Nova Friburgo as fatalists. Table I shows that more self-reliant victims show a more active familiarity with the weather site; posting almost 4 times as many messages as the fatalist ones. Similarly for the objectivity of the messages, which among the self-reliant are 45% shorter.

	Nova Friburgo fatalists	Florianópolis self-reliant
Messages quantity	84	329
Period, on January 2011	01/08 to 01/14	01/19 to 01/25
Media characters amount per message	103,5	47,3

Table I: messages posted during the events.

The content of the 413 messages was classified into seven categories as in Table II.

Proportionately, fatalists express six times greater awe regarding the magnitude of the disaster and issue

almost three times as more calls with religious overtones than the self-reliant do. On the other hand, the proportion of messages by self-reliant verifying weather conditions is three times as more frequent as those of the fatalists.

The data in table II suggests that the fatalists seem themselves as victims of events beyond their control, while the self-reliant use the weather service more objectively and with a greater focus on weather conditions and forecasting; on the other hand, the fatalists ask for help and issue religious exclamations.

	Nova Friburgo fatalists		Florianópolis self-reliant	
Religious	15	17,9%	21	6,4%
Human/government fault	02	2,4%	03	0,9%
About weather conditions	25	29,8%	243	73,9%
Evaluation of disaster	32	38,1%	17	5,2%
Call for Rescue/support	04	4,8%	01	0,3%
Weather forecast verification	09	10,7%	109	33,1%
Other	28	33,3%	83	25,2%

TABLE II: Message subject.

Better use of weather forecasting information and greater disposition to act on the basis of that information should lead to lower death rates. This is precisely what Table III shows: a) the dislodged population, per hundred thousand in the storm area among the fatalists is 2.4 times the same proportion among the self-reliant; and b) the same proportion of fatal victims among the fatalists is 310 times larger than among the self-reliant population.

IV. CONCLUSIONS

Further research should be carried out to measure the difference in fatalism between both populations, if it confirms the analysis of the literature suggested here, the results of this work suggest an innovation in the criteria for apportionment of Federal funding.

Local elected authorities reflect the culture of the place. If the inhabitants are fatalists the authorities might be more enlightened or informed but will also show a greater degree of fatalism and fail to go as far in prevention and mitigation readiness as the self-reliant do. This means that fatalist authorities will tend to fail to make as much, or as soon, of the information and resources readily at hand.

Federal authorities frequently are called in to step-up in response to local crises whose magnitude could have been averted. This should give Federal authorities the power to wrestle-in their perspective into local fatalist institutions in order set-up more effective prevention and mitigation readiness in regions where fatalist attitudes are more predominant.

	deaths	Per hundred thousand/ population¹	Dislodged	Per hundred thousand/ population¹
Nova Friburgo, fatalists	426	234	5,251	2,885
Storm area	900	137	19,717	3,521
Florianópolis, self-reliant	03	0.7	200	48
Storm area	06	0.4	20,576	1,478

TABLE III: effects on the population, absolute and relative casualties. 1. Instituto Brasileiro de Geografia e Estatística, 2010 census

This also means that the Federal government should allocate and deploy its own readiness to storm-related crisis more readily where the cultural proclivity of its population leads them to doing less about it. Clearly, education must also be emphasized, but because culture is so slow to change its unlikely that the death rates will be reduced without government intervention to supplement the pro-active stance that fatalist attitudes does not favor.

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VI. REFERENCES

- Balderston, Daniel Gonzalez, Mike. *Encyclopedia of Latin American and Caribbean literature, 1900-2003*. Routledge, 2004
- Havighurst, Robert J. Moreira, J. Roberto. Society and Education in Brazil. *Volume 54 of Pitt paperback. Studies in comparative education*. University of Pittsburgh Pre, 1969 .
- Kirkendall, Andrew J. Paulo Freire & the *Cold War Politics of Literacy*. UNC Press Books, 2010,
- Kluck , Patricia Ann, Decision-making among descendants of German immigrant farmers in Rio Grande do Sul, Brazil. *Volume 61 of Latin American studies program*. Cornell University, 1975.
- Lenartowics, Tomasz and Roth, Kendall (2001). Does Subculture within a Country Matter? A Cross-Culture Study of Motivational Domains and Business Performance in Brazil. *Journal of International Business Studies*, Vol. 32, No. 2 (2nd Qtr., 2001), pp. 305-325
- Sims, John H. and Bauman, Duane (1972, June 30). The Tornado Threat: Coping Styles of the North

and South. *Science* 30: Vol. 176 no. 4042 pp. 1386-1392. DOI: 0.1126/science.176.4042.1386

Zucatto, Luis, Ferasso, Marcos, e Evangelista, Mário. A importância das exportações para o desenvolvimento local da fronteira Noroeste do Rio Grande do Sul e do Extremo-Oeste de Santa Catarina. *Revista Portuguesa e Brasileira de Gestão*, jun. 2010, vol.9, no.1-2, p.97-111.

http://en.wikipedia.org/wiki/K%C3%B6ppen_climate_classification and <http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.html>