ABSTRACT
Among the main components that define human health, some from the geographic context as local climate. Some components of the geographic context (e.g., local climate) seem to influence mortality from circulatory disease as stroke. This influence is not consensus yet in the literature, setting up a discussion with important gaps to be filled. Thus, the main objective of this project is to investigate the influence of geographic context (meteorological variables) in mortality by circulatory diseases (stroke) in São Paulo in the period from 2002 to 2011. Key words: Climate and health, stroke, meteorological variables and São Paulo

BACKGROUND
In 2008 more than 9 million people died prematurely from cardiovascular disease (CVD). About 8 million of these deaths occurred in peripheral countries (World Atlas of Cardiovascular Diseases, 2011).

In São Paulo, with a population of more than 11 million people in 2013, located at the latitude 23º52’S, where normal mean, minimum and maximum temperatures are 19.4º, 15.2º, 35.4ºC, these relationships were not investigated so far. Thus, the aim of this study was to investigate the influence of temperature on stroke mortality in São Paulo

RESULTS
In descriptive statistics table it is observed that minimum daily deaths from stroke 2 and the maximum 32 for the period 2002 to 2011 for ischemic and hemorrhagic subtypes the maximum was 12 and 15 deaths respectively.

The percentage increase calculated for outcomes were more significant in the early days of temperature exposure, indicating a rapid influence of this variable on mortality. For all stroke cases the percentage increase is 6.2% for each 1°C increase in average temperature, for the female gender is 5.7%, and 4.8% for males (Table 3). For most ages 65 the percentage increase is 1.1, 7.8, and 1.1% for women and men respectively. As for the age group 35 to 64 years only the data obtained with both genres significance, a percentage increase of 4.8% in mortality.

METHODS
Daily mortality for stroke, meteorological variables and air pollution data were obtained for the period of January 2002 to December 2011. The percentage increase of mortality for total stroke, hemorrhagic, and ischemic stroke were estimated with endpoint-specific generalized additive Poisson regression models. Nonparametric smooth function was used to control seasonality and an indicator of holidays was adopted to control short-term trend. Effects of mean temperature, humidity, thermal amplitude, barometric pressure and air pollutants were assessed using specific third-degree polynomial distributed lag models for a time window of eight days. The models were controlled for humidity, atmospheric pressure, thermal amplitude and pollutants. The use of generalized Additive Models (GAM) is an alternative that allows, in a simple way, the control of these confounding factors, since this type of model eliminates the need to specify a parametric form for the association between predictors and response. The R (R Development Core Team 2014) software was used for all analyses.

CONCLUSION
The increase of mean temperature affects total stroke mortality and, in especial, the ischemic subgroup in this city in a Tropical area. This reinforces the concept that the subgroups of stroke, ischemic and hemorrhagic, may present different pathophysiological mechanisms and, hence, different risk factors.

ACKNOWLEDGEMENT

REFERENCES
MORABITO M., VALLOORI, R., CRISCI, A. Innovative approaches helpful to enhance knowledge on weather-related stroke events over a wide geographical area and a large population. Stroke 2011.

Table 1: Descriptive statistics of the studied outcomes: stroke, hemorrhagic stroke and ischemic stroke.

Table 2: Percentage increase in stroke mortality for an increase of 1 ºC in the average temperature.

Table 3: Percentage increase in stroke mortality for an increase of 1 ºC in the average temperature.

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