



## Weather Derivatives on Human Health: The case of OxyAlert

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Weather and climate have the ability to affect countless issues related to nature or to social and built environments. They affect to agricultural productions and cattle management, water availability, biodiversity distribution in the world, spreading of diseases, people and goods mobility and transportation or even to governmental policies definitions.

Weather and climate, as it happens with Information and Communication Technologies, are neither positive nor negative concepts themselves, but they are not neutral. The effects of the lack of neutrality are source of big uncertainties in order to make decision at all levels. In this sense, weather derivatives have achieved a clear and fundamental economic dimension in the capitalistic world that affect, insurances companies and global financial markets. This communication is focused on a specific segment on which the development of climate and weather related services are becoming more relevant each day such as the human health sector.

In this communications OxyAlert System is presented. OxyAlert has been developed by the GEOBIOMET Research Group at the University of Cantabria. OxyAlert belongs to the Biometeorological Data Infrastructure (BDI) created by this group and it has four different purposes:

- First, the system generates global maps of the oxygen content of the atmosphere every six hours at a spatial resolution of 0.25 degrees.
- Second, it offers a mobile application (App) which has an alarm system with the ability to anticipate human health impacts generated by meteorological changes in relation to hyperoxia and hypoxia conditions. The app is based on a specific biometeorological conceptual model and can offer these services related to human health 72 hours in advanced.
- Third, it has developed a preliminary Alerts System in order to inform to emergency rooms at hospitals in relation to how weather changes can increase or decrease morbidity in advanced.
- Fourth, the system is collecting user data about their health state when an alert is on and this information is store on a relational database management system at the main server in order to assess and validate the existing system and to improve it in the future.

Biometeorological forecasting, predictions and projections are based on meteorological data. Transforming the meteorological datasets into useful services requires: (1) to give an added value to meteorological data itself (2) innovative scientific approaches far from the traditional ones and (3) availability of globalized technical devices to facilitate access to services anywhere in the world, on real time.