



## Simulation of a step by step prediction of the M=4.7 earthquake occurred in central Italy on August 22, 2005

P.F. Biagi (1), T. Maggipinto (1), L. Castellana (1), and A. Ermini (2)

(1) Università di Bari, Physics Department, Bari, Italy (biagi@fisica.uniba.it, +39 080 544-2434), (2) University of Roma Tor Vergata, Department of Engineering of Enterprise, Rome, Italy

From 2002, a VLF-LF radio receiver is into operation in Bari (southern Italy). The intensity of the signals transmitted by GB (f=16 kHz, United Kingdom), FR (f=20.9 kHz, France), GE (f=23.4 kHz, Germany), IC (f=37.5 kHz, Island) and IT (f=54 kHz, Sicily, Italy) has been monitored with a 5s sampling rate. On August 19, 2005 a clear drop in the intensity of the FR radio signal appeared. Here a possible seismic prediction based on this drop considered as a precursor is presented. At first the probability that the drop could be connected to the seismicity was evaluated on the basis of the previous data analysis. Then, the analysis for defining time occurrence, location and magnitude of the forthcoming earthquake was undergone. The results have indicated a good probability for the occurrence within 15 days of an earthquake with M in the range 4.5-5.5 in the Colli Albani (near Rome) seismogenic area. A fundamental rule in the precise definition of the epicentral zone was the indication of anomalies in the Radon content in air revealed in this zone by a station for monitoring the environmental radioactivity. On August 22, 2005 an earthquake with M = 4.7 occurred in the Anzio (near Rome) offshore area. The epicenter is inside the 5Th Fresnel zone of the FR radio signal and it is located 5 miles from the Tor Caldara "Diffuse Degassing Structure" where the Radon content in air is sampled by researchers of the INGV (National Institute of Geophysics and Volcanology).