Geophysical Research Abstracts
Vol. 12, EGU2010-11195, 2010
EGU General Assembly 2010

Fluids/faults relationships and the earthquake prediction related to the April 6th 2009, L'Aquila Earthquake.

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The recent seismic crises which hit the Central Italy one year ago killed 300 people among the ruins and the polemics caused by an unheeded alarm based on radon data, and focused the attention on the relationships between scientific and social/political world.
It is commonly accepted that is impossible to forecast any earthquake, thus the word "prediction" is generally refused by both scientists and politicians, however all of us can provide tools to better understand how seismogenesis works on the fluids circulating over any seismic area of the world and the scientific community have to find a way to improve this knowledge by a closer cooperative work. The Earthquake prediction still represents one, among the biggest, unsolved problems for the whole humankind.
The seismic crisis that struck Central Apennines (Italy, Abruzzo Region) has also clearly shown that the attempt to provide an earthquake prediction has caused alarms due to incorrect use of the scientific information (moreover taking into account only one parameter: radon), and the consequence was a credibility loss for the geochemical (and not only) scientific community. A geochemical survey was carried out just after the destructive M6.3 Earthquake following the methodological approach developed during ten years of geochemical monitoring of the nearby seismic-prone area of the Umbria Marche region, severely damaged by the 1997-98 seismic crisis. The results allowed us to understand some aspects related to the relationships between the circulating fluids and the deformed crust hit by the faulting activity.
Gas samples from soils and wells (locally known as "blowing" wells) have been collected besides soil degassing measurements carried out over the fractured area. The collected data have been compared to former information on the geochemical features of the fluids circulating over Central Apennines, already hit by recent strong seismic shocks (e.g. the Umbria-Marche region). The aim was to evaluate the possible modifications induced by the seismic sequence on the circulating fluids taking also into consideration that large-scale phenomena (crustal deformation, epicentres dislocation etc) might have induced modifications even at sampling sites located far away the area struck by the April 6th, seismic shock. To do this, the origin, the mixings and the possible interactions among fluids from different provenance was investigated. As a result, the geochemical model able to interpret the occurred modifications (including changes in radon activity) and their relationships with the faulting activity and the seismic activity, is here proposed and discussed.