

## Potentially Toxic Metals and Persistent Organic Pollutants high resolution monitoring in the Campania Region: Sources, environmental processes and health issues

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Webinar “Live” on-line at Zoom link:

<https://unipd.zoom.us/j/82978693795?pwd=TmlBSDBVRFVNL3NwTUUpGSW8rWFdpQT09>

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### Abstract

In the Campania Region, Southern Italy, an innovative, multidisciplinary, approach was adopted since 2015 to face environmental and health alarm related to the so-called “Terra dei fuochi” (Land of fires). In this area, affected by illegal waste disposal, scientific data on the environmental and health conditions were lacking and the need of information triggered a large campaign of geochemical investigations at regional scale within the project “Campania Trasparente”. The analyses aimed to: 1) characterize the geochemical composition of agricultural and metropolitan areas soils, air, vegetable crops and groundwater at regional and local scale; 2) define the level of bio-availability of toxic elements and compounds; 3) determine the absorption rates of the various types of vegetable crops of potential chemical contaminants; 4) try to demonstrate a direct relationship between the presence of contaminants in the various environmental matrices, in agricultural products and finally in the human matrices (hair, urine, blood) through innovative methods. A major aim was to try to determine, where possible, the potential migration paths followed by potential pollutants from the geological-environmental sector to the biological sector and, from the latter, along the entire path (trophic chain).

The project was carried out by researchers with different expertise (hydrogeology, soil sciences, biology, medicine) and uses different sampling matrices: soils, air, water, vegetables and biological samples. The investigations characterized the status of potentially toxic metals (PTMs) and hazardous persistent organic pollutants as Organochlorine Pesticides (POPs).

The results obtained showed that most of these elements and compounds are pervasive in all the studied environmental matrices, but mostly, critical, hotspot areas were found to occur in Napoli Metropolitan Area (NMA). The “Terra dei Fuochi” was only marginally interested by anomalous occurrence of PTMs and POPs, despite some hotspots, not justifying the emotional alarms calling for an incidence increase of oncological cases due to diffuse practice of wastes, illegally, disposed underground in the area. Mostly it was found that the agricultural crops of the Terra dei Fuochi were not affected by anomalous potentially toxic contaminants. The ecological risk conditions for PAHs and some OCPs (e.g. Endosulfan) were determined, mostly in NMA.

Proposer: **Prof. Giorgio Cassiani**