

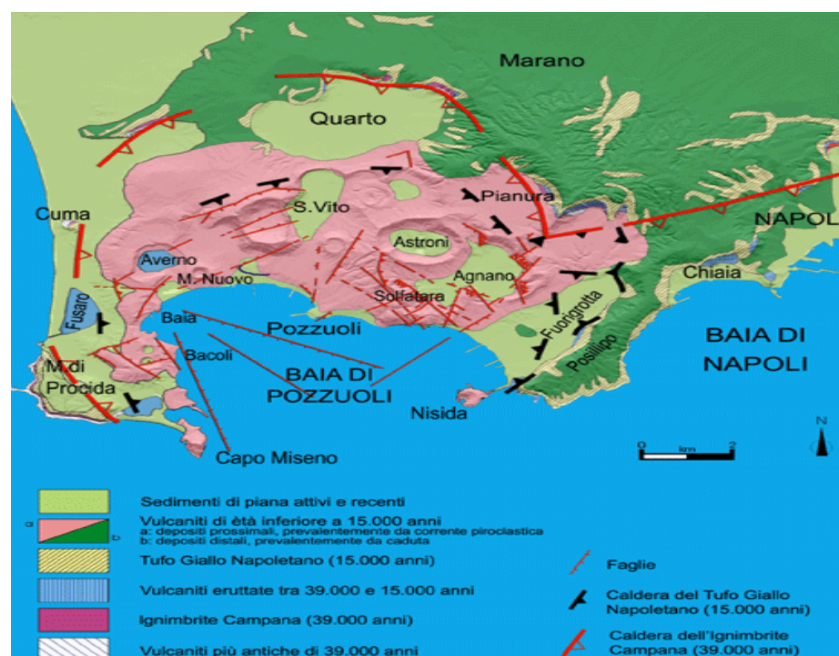
Two young participants in the project, members of Peripli Association, Martina and Miriam, engaged in University studies in scientific sectors, decided to highlight with a short report a particular aspect of the Flegrea area, adjacent to Pozzuoli, that for meteorological reasons (even if many places could not be visited due to renovation works) it was not advisable to visit during the meeting in Naples of the 2 groups.

## ENVIRONMENTAL POLLUTION IN THE FLEGREAN FIELDS

### Impact on food and health

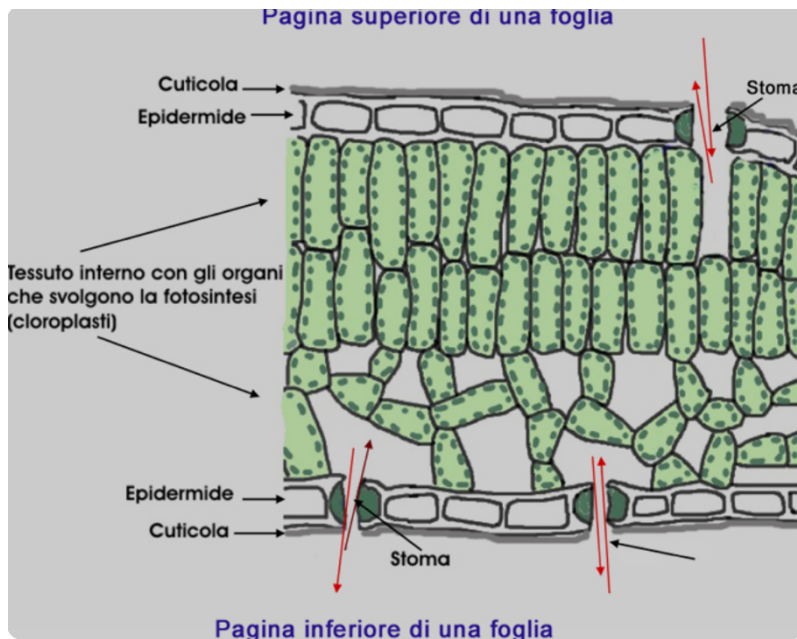
Environmental pollution has become one of the most pressing problems of our time, with serious consequences for human health and the ecosystem.

One of the most significant examples in southern Italy relating to this problem is the one provided to us in the Campi Flegrei area, a vast volcanic area located within the Campania region. This area, characterized by a unique natural beauty, is afflicted by a series of polluting factors that threaten the quality of the food produced and the health of the people who live there.



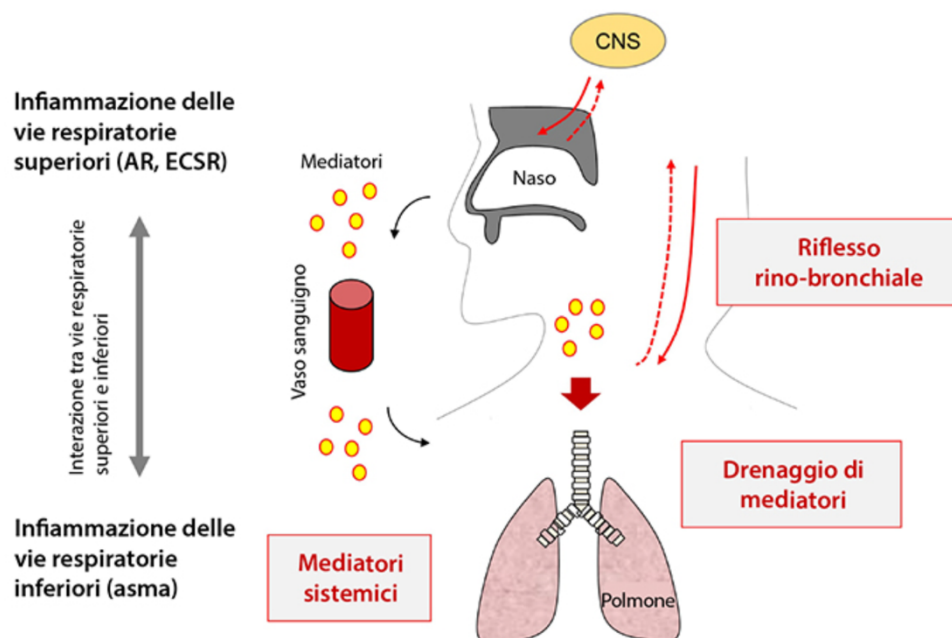
The Campi Flegrei are in fact an area of intense volcanic activity and this activity involves the emission of pollutants into the atmosphere. The volcanic eruption releases large quantities of sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), fine dust and other harmful substances into the air. Furthermore,

these air pollutants can be transported for kilometers from the emission source, spreading throughout the entire Campi Flegrei area and beyond.



This pollution has a significant impact on the quality of the food produced in the Campi Flegrei. Plants grown in this area absorb pollutants from the air through their stomata. This not only compromises the health of the plants themselves, but affects the nutritional composition of the crops.

For example, high levels of sulphur dioxide can reduce the ability of plants to assimilate essential nutrients, such as iron and zinc, making agricultural products less nutritious for the human diet, reducing humans' ability to absorb iron.



Air pollutants coming from the Campi Flegrei can thus have - if not controlled - harmful effects on human health. Sulphur dioxide and nitrogen oxides, for example, are very irritating substances for the mucous membranes even in very low doses. Prolonged exposure to these substances can contribute to

the development of respiratory diseases, such as asthma and chronic bronchitis.

Starting from the upper airways, the inspired air reaches the trachea, the bronchi and the lungs, within which the functional unit is represented by the pulmonary alveoli, to be imagined as small sacs around which the blood flows within the alveolar capillaries. The inhaled air is rich in oxygen, while the blood present inside the capillaries is a poorly oxygenated type of blood, coming from the periphery of the body where the oxygen has been taken from the tissues to carry out their normal function.

Fine particles in the air can enter the lungs and respiratory system, causing inflammation and tissue damage. Individuals who suffer from this type of respiratory system disease, almost as a defense, to avoid the risk of systemic inflammation, release more mucus and produce a whole series of mediators necessary for the elimination of the harmful particles themselves, which however, in the in the case of repeated exposures, it causes pulmonary congestion, due to an increased secretion of the same with the possibility of developing infections. A consequence of congestion is an incorrect exchange of gases at the level of the pulmonary alveoli which can, in the long term, lead to incorrect oxygenation and functioning of the peripheral tissues.

Another consequence is represented by the increase in pressure within the capillary vessels which can, in the long term, be associated with an increased risk of cardiovascular diseases, neurological disorders and developmental problems in children.

Tackling environmental pollution in the Campi Flegrei requires an integrated approach involving local authorities, farmers and the community as a whole. Some possible mitigation measures include:

1. Air monitoring and emission control. It is essential to constantly monitor the air quality in the Campi Flegrei to identify sources of pollution and adopt effective measures to reduce harmful emissions.
2. Sustainable agriculture. Farmers can adopt sustainable agricultural practices that minimize the use of chemical fertilizers and pesticides, thus reducing the amount of harmful substances absorbed by plants.
3. Awareness and education. It is important to inform the local community about the effects of environmental pollution and promote responsible behaviour that reduces environmental impact.
4. Investments in renewable energy. Reducing dependence on fossil energy sources and promoting the use of renewable energy can help reduce polluting emissions and improve air quality.

Addressing the problem of environmental pollution in the Campi Flegrei represents a significant challenge for the Campania Region and requires urgent action to protect human health and the ecosystem. Close collaboration between local authorities, farmers and the local community is necessary to reduce polluting emissions, adopt sustainable agricultural practices and promote greater environmental awareness. Only through joint effort can we preserve the environment and ensure a healthy future for generations to come.