

Metrology

Measurements in our Environment

World Metrology Day: 20 May 2007

Our environment is essential to our wellbeing. Changes to it affect us all and are of concern as, increasingly, it is believed that current human activity might have negative effects on the environment. For that reason, measurements of our environment are more important than ever as they help us to: monitor environmental changes and determine their future effects on living organisms. Metrology – the science of measurement – allows us to monitor the quality of our environment reliably by obtaining data that can be trusted by everyone.

Water

Water is essential to life on Earth and its condition in oceans, rivers, glaciers, lakes and our water supply systems is important to us all. It is vital that we regularly measure water sources to:

- monitor temperature, pH, salinity and heavy metals,
- monitor levels of nitrates and phosphates in agricultural and industrial effluents.

Air

Our atmosphere yields the weather, provides the clean air we breathe, protects the planet from harmful solar radiation and helps control the temperature of our environment. It is vital that we regularly measure our air to:

- monitor levels of greenhouse gases and car and industrial emissions,
- monitor the evolution of the capability of the atmosphere to protect us from solar radiation.

Soil

Soil is the fundamental means of food production and is essential for life on Earth. A healthy soil improves the quality and quantity of food and assures diverse flora and fauna. It is vital that we continuously test soil to:

- monitor texture, moisture, pH and nutritional levels needed for optimal crop growth,
- monitor pollutants coming from pesticides, fertilizers and industrial waste.

Climate Change

The climate is the average weather we can expect at any given time of the year. It is increasingly accepted that some human activity might be having consequences on our planet's climate and may be partially responsible for such things as the melting of polar ice and increased storm activity. It's therefore important that we constantly monitor our climate to:

- track long-term changes in weather, ocean temperatures, and the rate of melting of polar ice,
- provide accurate data which governments can use to set and to monitor the short- and long-term effects of environmental policies.

Sound

Sound is part of daily life but certain sounds, based on their intensity and duration, can be harmful for the environment and hazardous to our health. It is vital that we regularly:

- monitor noise pollution to prevent levels that might damage our hearing,
- record sound waves to monitor possible earthquakes and tsunami activity.

Radiation

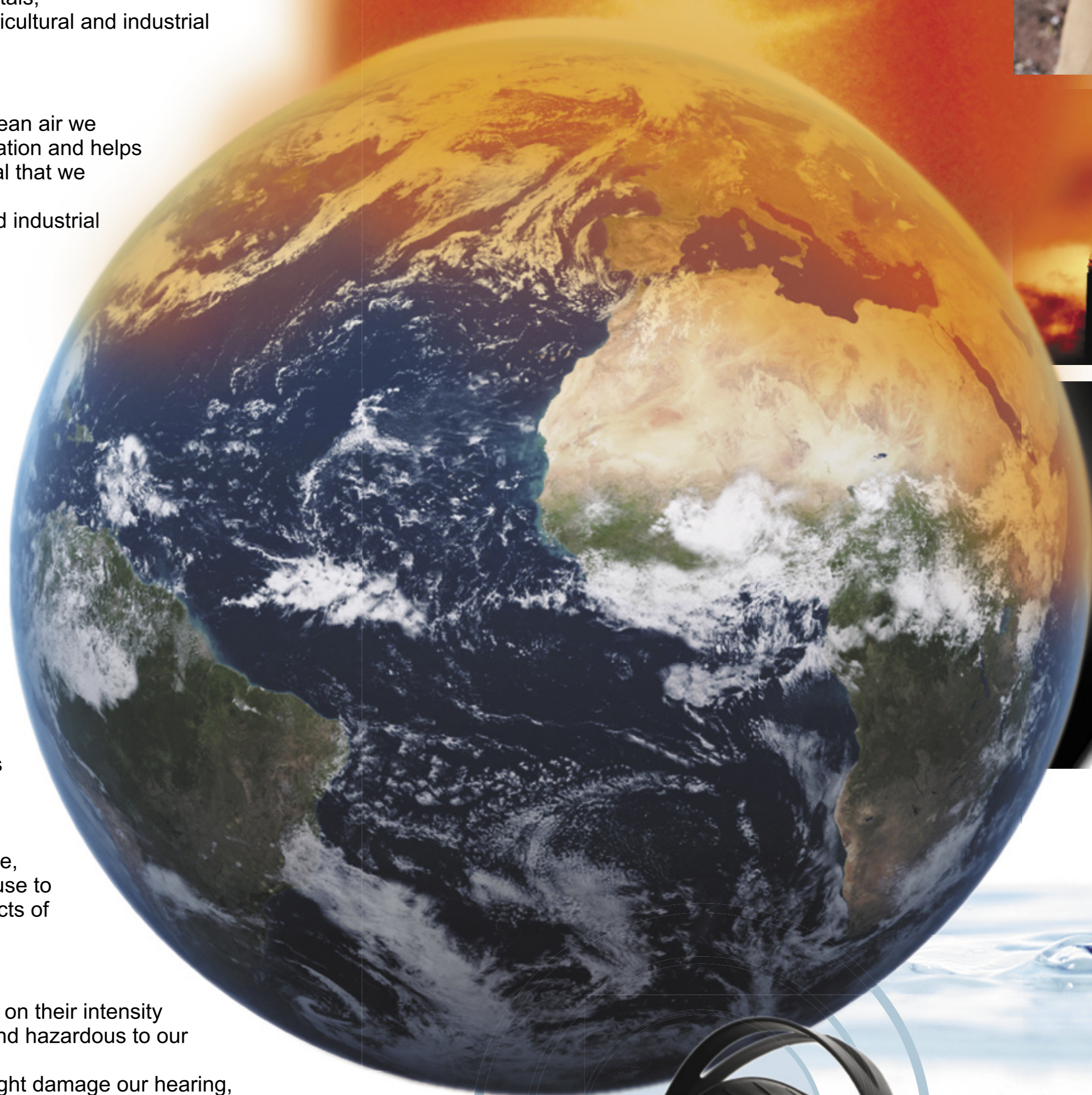
Radioactivity is a natural characteristic of some elements and is intentionally produced in nuclear reactors, and used in medical applications. It is important that we routinely monitor radioactivity levels to:

- survey for man-made contamination,
- ensure the safety and effectiveness of medical devices.

The accuracy of long-term measurements is assured by their traceability to internationally recognized measurement standards and/or certified reference materials. These allow us to trust the data provided by the measurements and to have confidence in decisions taken on its basis. Your country's National Metrology Institute, in collaboration with other National Metrology Institutes and International Metrology Organizations, works to ensure that health and safety organizations, commercial enterprises and governments have the data needed to help safeguard your health and that of our planet.

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