# WATER OLD AND NEW


Part of a collection of rain-water samples obtained for the IAEA/World Meteorological Organization global project for the determination of the concentration of hydrogen and oxygen isotopes in rain-water.

Samples are collected monthly at about 100 stations all over the world, and are analyzed for tritium (radioactive hydrogen) concentration at the Agency's laboratory and some other advanced laboratories. The purpose is to study the circulation pattern of water vapour and to measure the tritium concentration of rain-water in different parts of the world. This knowledge is needed for solving local, regional and global problems of water supply.


Containers labelled "dead water" contain no tritium. This water is used to check the counting equipment in order to ensure consistent measurement, and to assess background radiation.

Tritium is produced in the atmosphere in nature and by nuclear testing, and is brought down by rainfall. In a particular water body, absence of tritium or a lower-than-normal concentration, indicates the radioactive decay (loss of radioactivity) of the original tritium without fresh injection of tritium from rain - i.e., the water would be old. As the rate of decay of tritium is known, the measurement of tritium can solve problems of hydrological chronology.