

## **Readme: Cosmic Rays - IGY**

ANNALS OF THE INTERNATIONAL GEOPHYSICAL YEAR (IGY)  
Volumes XXVI, XXVII and XXVIII (26, 27, and 28)

TABLES OF IGY COSMIC RAY DATA Part I  
TABLES OF IGY COSMIC RAY DATA Part II  
TABLES OF IGC COSMIC RAY DATA Part III

Editor J.A. Simpson, CSAGI Reporter for Cosmic Rays

NOTE: These cosmic ray data are published in three volumes of the Annals of the IGY. Data were stored on 5 1/4" floppies and converted in 2005 to more recent storage media. Originally they were stored on punched cards. Not all station data published in the Annals have been found.

These cosmic ray databases include Neutron Monitor, Cubical Telescope, Vertical Telescope, Ion Chamber, Underground Telescope and Shower Apparatus data monitored during the July 1957-December 1959 IGY and International Geophysical Cooperation (IGC) time period.

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Added Text: WFD

Neutron Monitor – A neutron monitor is a ground-based detector designed to measure the number of high-energy charged particles striking the Earth's atmosphere from outer space. For historical reasons the incoming particles are called "cosmic rays", but in fact they are particles, predominantly protons and Helium nuclei. Most of the time, a neutron monitor records galactic cosmic rays and their variation with the 11-year sunspot cycle and 22-year magnetic cycle. Occasionally the Sun emits cosmic rays of sufficient energy and intensity to raise radiation levels on Earth's surface to the degree that they are readily detected by neutron monitors. They are termed "Ground Level Enhancements" (GLE). The neutron monitor was invented by University of Chicago Professor John A. Simpson in 1948.[1] The "18-tube" NM64 monitor, which today is the international standard, is a large instrument weighing about 36 tons. (Wikipedia)

Cubical Telescope – Text

Vertical Telescope – Text

Ion Chamber – The ionization chamber is the simplest of all gas-filled radiation detectors, and is widely used for the detection and measurement of certain types of ionizing radiation; X-rays, gamma rays and beta particles. Conventionally, the term "ionization chamber" is used exclusively to describe those detectors which collect all the charges created by direct ionisation within the gas through the application of an electric field.[1]

It only uses the discrete charges created by each interaction between the incident radiation and the gas, and does not involve the gas multiplication mechanisms used by other radiation instruments, such as the Geiger-Muller counter or the proportional counter. Ion chambers have a good uniform response to radiation over a wide range of energies and are the preferred means of measuring high levels of gamma radiation. They are widely used in the nuclear power industry, research labs, radiography and other medical radiation fields, and in environmental monitoring. (Wikipedia)

Underground Telescope – An Underground Telescope is more typically referred to as a underground muon detector

Shower Apparatus – Text

#### References

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