

## Measurements from space A global view on the UV-radiation

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Although a good precision and a high time resolution, ground based UV measurements offer, because of their local character and because of their reduced number of stations, only a routine view on the complete spatial spread of UV-radiations. Measurements from space form a unique method to get a global view on the UV-radiations on Earth. The instrument GOME (Global Ozone Monitoring Experiment), on board of observation satellite ERS-2, brought in an orbit around the Earth, is used for measuring minor constituents in the atmosphere like ozone and carbon dioxide. However other experiments, like the determination of the UV-flux on the level of the Earth's surface, can be conducted as well.



Like the illustration alongside represents schematically, the instrument in an orbit around the Earth doesn't measure the radiation that reaches the surface (as is the case with instrument on the ground), but the part of radiations that is dispersed or reflected back into space. This measurement allows us to obtain quantitative information about the total amount of ozone present in the limited volume scanned on the moment of passing through of the satellite, as well as a reasonable estimation of the cloudiness for a same part of the atmosphere.

With these data we can calculate the UV-flux reaching the surface of the Earth. But even when observations from out of space offer the opportunity to get a global view on the atmosphere and indirectly on the UV-flux that reaches the surface, even then the observations are limited by the space resolution and the time resolution of the instrument. In the particular case of the GOME-instrument, the elementary surface in which measurements are conducted is a rectangle of 40 on 320 km. Moreover the instrument covers the total surface of the Earth only ones every 3 days.



The figure alongside represents the erythemal dose received on the ground between 20th and 22nd of January 1998. In this particular case we see the dose received on a local noon of the sun. This means: the largest dose that can be received on one day, namely when the Sun stands locally on its highest point above the horizon.

