

〈教育セミナー〉

光老化を防御する—光に関する基本知識から最新のサンケア製品まで—

「光の時代」  
—改めて光を学ぶ—

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“Time of Light”  
—Learn Light Once More—

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**Abstract**

The sunlight is essential for all living things on the Earth. In addition, the light has been applied in every technology, science, and art. Therefore, light is a fundamental technology supporting modern human society. In this paper, the fundamental characteristics of light and recent solar light environment are discussed. The light is one of the electromagnetic waves, and consists of ultraviolet radiation, visible radiation and infrared radiation, which wavelength band is from 1 nm to 1 mm. The ultraviolet radiation is more active on the chemistry than visible/infrared radiation. A based on the long-term ground observation on the solar radiation at Hiratsuka, Japan, it is clearly shown that, the solar ultraviolet-B irradiance is affected by the amount of ozone in the atmosphere but also by weather and air pollution. Since 2001 the total amount of ozone shows recovery trend as +0.207%/year. According to the basic relationship between solar ultraviolet-B irradiance and ozone, it has become clear that solar ultraviolet-B irradiance should be decreasing. However, the solar ultraviolet-B irradiance shows increasing trend as +0.538%/year. It is considered that this increasing trend of solar ultraviolet-B irradiance was affected by ozone, weather, air pollution, and solar activity. Moreover, the global warming been attracting attention in the world. Ozone is one of the greenhouse gas. This fact clearly shows we cannot separate on the ozone depression and global warming as a difference problems. These problems should be handled with as one serious global environmental problem, and monitoring and evaluation have been required.

**Key words:** light, solar ultraviolet-B, ozone, long-term trend, global warming.