



**S26 Measurements and modeling of biologically active UV solar radiation:
towards balancing between risks and benefits**

Conveners: [Alkiviadis Bais](#) (GR) & [Irina Terenetskaya](#) (UKR)

This session accepts both full papers and abstracts

It is known that solar ultraviolet (UV) radiation is the most important environmental risk factor for human health in view of high energy of UV photons that are absorbed by UV sensitive macromolecules in human skin giving rise to photochemically induced alterations in their structure. Not surprisingly, these photochemical reactions have both positive and negative biologic effects.

It is believed that solar UV exposures are responsible for photoaging and increasing the risk of skin cancer. However, sunlight is the most important provider of vitamin D for humans that is formed in the skin from 7-dehydrocholesterol as a result of UVB exposure. Recently large number of epidemiologic and laboratory studies indicated a connection between vitamin D deficiency and a broad variety of independent diseases including various types of cancer, bone diseases, autoimmune diseases, hypertension and cardiovascular disease.

Hence a serious problem is to find a balance between risks of vitamin D deficiency and skin cancer. Due to convincing evidence it is believed that the protective effect of less intense solar UV radiation outweighs its mutagenic effects, although further work is necessary to define adequate guidelines for solar UV exposure.

Accurate monitoring of solar UV spectra both by spectroradiometers and various biodosimeters, elaboration of reliable algorithms for calculations specific biological activities and their comparison with experimentally measured data will promote well-balanced recommendations on sun protection ensuring an adequate vitamin D status.