The basic target of the project is an improvement of the algorithm to parameterize UV attenuation by clouds to be applied in 24h forecast of surface UV intensity. An increase of the incidence of diseases associated with UV overexposure has been recorded since the early 1970s. The solar radiation reaching the Earth's surface is attenuated due to the ozone absorption in the stratosphere, aerosols or cloud scattering in the lower troposphere. UV radiation shows variability in dependence on altitude of the measuring site, sun elevation, and ground albedo. An intensity of the UV reaching the earth's surface is expressed in UV index (UVI) units. During outdoor activities one should take a protection against excessive UV when UVI is grater than 3. The higher value of UVI mean that the duration of solar exposure should be shorter because of a risk of sunburn and/or carcinogenetic changes in the body. For example if UVI ~ 8 the safe sunbathing should be limited to ~ 20 minutes for Poles with light complexion. Currently, information about the UVI level are given to the public through the media. Unfortunately, this parameter is usually calculated only for local noon. Thus it represents the daily maximum of the UV intensity. This limits the possibility of its practical use and significantly reduces its usefulness for peoples planning outdoor activity during different time of the day. Therefore within the project all tested algorithm are prepared for 1h resolution of the next day UVI forecast. Previous studies showed that clouds are the decisive factor reducing the surface UV radiation. Unfortunately, the cloud impact of UV radiation was only roughly modeled because of complexity of processes responsible for cloud formation and further evolution. In order to improve the cloud parameterization in UVI forecast we will examine a performance of various cloud models (10 models routinely operated in the weather forecast by the Wroclaw computer centre). Each model possesses its good and bad points that could appear under specific configuration of the weather conditions. Using ten different cloud models, we are able to identify their joint strengths and prepare optimal model applying weighting to each model individual performance. This approach is the so-called ensemble approach. The best model will minimize model/observation difference. Real observations of UVI at the UV monitoring stations of the Institute of Geophysics PAS (Belsk, Lodz, Poniatowa, Wroclaw) are used in the model building taking also a profit from machine learning methodology. The results will be compared with output of the model run by German meteorological service, which is now the basis for calculating the UV index in the world.