

We mapped the migration of some of the Vedic tribes all the way from the Black Sea region to India by precise positioning of the established 4399 toponyms and hydronames formed on the base of their ethnic names derived from processing and linguistic analysis of 6 900 000 toponyms and hydronames on the maps of India, Pakistan, Bangladesh, Afghanistan, Uzbekistan and Iran.

We make critical analysis of the available geological and archeological data related to the Black Sea Flood in order to establish its reliability and to refine its dating and extend. We demonstrate that timing of the start of formation of sapropel sediments; the formation of hydrogen sulfide zone in the Black Sea as result of decomposition of the sapropel deposits; the appearance of the first marine organisms and the abrupt replacement of the Black Sea freshwater dinocysts by a Mediterranean population coincide in the frames of the experimental error of the dating, with the best age estimate of $7\ 160 \pm 50$ radiocarbon years BP = $7\ 560 \pm 50$ cal. yrs BP. It allows us to relate it with the major human migrations at 7500 yrs. BP as traced and dated by paleolinguistic analysis and archeology. We present a number of climatic, oceanographic, linguistic, calendar, geographic and archaeological evidences suggesting that these events are related. Catastrophic flooding of the region appear to initiate migration of Indo-Europeans and their separation and differentiation in groups like German, Thracian, Illyrian, Greek, Arian, etc. tribes. Thus it strongly affected the development and history of all Indo-European people. The scale of this natural catastrophe suggests that this was perhaps the largest human migration produced by a natural disaster. This work examines the evidence for the flooding triggering this migration and also examines the extent of that migration.

The timing of the Black Sea Flood as determined by marine evidences and the timing of the start of the massive migration out of the Black Sea region coincides in the frames of the experimental error and is the same as the beginning of the Bible chronology (Creation of the World), i. e. 5500 years B.C. and also as the beginning of the Byzantine and ancient Bulgarian calendars (5505 years B.C.). This suggests that this catastrophic event was so dramatic and had so great consequences for great number of people, to be used as the beginning of the time counting by the people leaving in approximate vicinity to the affected region. At that time all Indo- Europeans (including the ancestors of the ancient Greeks and Bulgarians) were settled at the Black Sea coast, so it is quite reasonable to presume that their chronology starts from the Black Sea Flood as far as this was the most dramatic natural phenomena they faced in their history. It is reasonable to suggest that the migration out of the Black Sea region was initiated by the Black Sea Flood as far as it flooded a significant part of this densely populated region. This submerging of 160 000 square kilometers was caused by a rapid rise of the Black Sea level with about 100 meters. It left homeless and without food supply great part of the Indo Europeans settled around the former sea coast. Therefore this most dramatic disaster in the human history forced them to migrate out of this dangerous region. This way the Black Sea Flood played major role in the Indo Europeans history.

We provide vast range of data demonstrating that Black Sea Flood triggered an out-migration from the Black Sea area into India with major repercussions for present population characteristics as established by comparative genetic studies.

Acknowledgements: This research has been funded by grant 02-337 by the National Science Fund of Bulgarian Ministry of Education and Science

Is it possible to use natural resources in a sustainable manner after intensive exploitation?

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Due to the long isolation period and the development of various industry sectors, the contamination of land and additional negative environmental impacts have been continuous and severe in the period 1950-1990 for Albania. Based on data published in literature, this review is a first attempt to put together the natural resources and the sites where the ore

minerals have been treated in Albania in order to address issues related to the sustainable development. However, the intervention of the government to minimize the adversity left behind from the former industry in the form of resource conservation subsidies or depletion taxes for new investors, might improve the present environmental situation. The use of cost benefit analysis to evaluate the development in conjunction with sustainable use of natural resources might minimize the adversary effects of the past. Since other factors, such as the financial constrains, play an important role in the equation, the aid of the foreign investors or international institutions shall also be supported and assisted by the Albanian authorities.

A characterization of human erythemat and vitamin D exposure from UV radiation measurements at Rome station

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Solar ultraviolet (UV) radiation covers the wavelength range 200-400 nm and is responsible for many physical, chemical and radiative processes in the atmosphere. The spectral atmospheric attenuation of solar ultraviolet radiation depends mainly on stratospheric ozone absorption, Rayleigh scattering by air gases and Mie scattering by aerosols. Surface albedo, altitude, solar zenith angle (depending on latitude and time of day) and local atmospheric composition (tropospheric gas, cloud cover and particulate) are responsible of large seasonal and geographical surface UV variability.

Despite the fact that the amount of solar ultraviolet radiation reaching the Earth's surface comprises only a small fraction of the global radiation, approximately 6-7% in the UVA (320-400 nm) region and less than 1% in the UVB band (280-320 nm), current evidence suggests that it is the major causative factor in several short and long term skin and eye diseases. Nothwithstanding the adverse effects, solar UV radiation is responsible of vitamin D₃ synthesis required for skeletal health and appropriate vitamin D levels have been suggested as beneficial factor against breast, prostate and colon cancers. Exposure to solar UV radiation during occupational and leisure activities is therefore a significant public health issue. A scientific debate is still ongoing regarding the health duality of solar ultraviolet radiation and seeking for the optimal UV exposure.

In the present study surface high-quality UV irradiance measurements recorded in the period 1996-2009 at Rome station by means of Brewer spectrophotometry are taken into account. The Solar Radiometry Observatory of Sapienza University of Rome (41.9° N, 12.5° E, 75 m a.s.l) is operational with the Brewer spectrophotometer #067 since 1992 and the YES broadband UV radiometer since 2000. The spectral UV data are used to retrieve the ambient (i.e on horizontal surface), biologically effective UV quantities. The action spectrum for the synthesis of pre-vitamin D (CIE 2006) and of erythema (CIE 1998) were employed to determine the vitamin D and erythemat dose rates. The seasonal and diurnal variability of both biologically effective UV irradiances at this mid-latitude urban site under clear and all sky conditions are provided in order to identify the periods of UV overexposure as well as the periods in which the minimum effective dose rate is needed for pro-vitamin D₃ photoconversion. An investigation on both biological quantities as a function of total ozone and solar zenith angle is also performed. In addition, climatological erythemat and vitamin D doses are determined and compared to standard vitamin D and erythemat doses for different skin types.

Finally, a methodology to convert CIE erythemat dose rates values in vitamin D dose rates is proposed and the polysulphone dosimetry, usually employed in order to quantify the erythemat dose, is discussed as a potential approach to pre-vitamin D₃ dosimetry. The results will be tested using data obtained by in vivo field campaigns.