lowest altitudes. Thus, the most negative δ^2H values of thermal waters observed far in the basin most probably result from recharge under cooler climatic conditions. Very high He excess contents and negative noble gas temperatures (NGT) derived from Ne and Ar concentrations are in agreement with such interpretation. The lack of ^{14}C and $\delta^{13}C$ values close to 0‰ in these wells also confirms that hypothesis.

Tracer data indicate the presence of the oldest waters in the north-eastern part of the basin whereas in the western part the exchange of water is faster by one to two orders of magnitude. That unexpected flow pattern most probably results both from the presence of some karstic channels in the western part, which enhance regional permeability, and from obstacles to horizontal flow caused by fault zones in the eastern part.

Crystallization conditions of the Xanthi Plutonic Complex (Rhodope Massif, Northern Greece): Geothermometry and geobarometry

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The Xanthi Plutonic Complex (XPC) is one of a series of Oligocene subduction-related plutonic bodies comprising an "acid" group and a "basic" group. Based on mineral compositions and assemblages of the "basic" group, the XPC is assumed to have originally crystallized at a pressure of 5.4 kbar and at a temperature of 1300^{o}C under relatively dry conditions and oxygen fugacity (fO_2) near the NNO buffer. As the basic magma migrates to shallower levels and at a temperature of about 870^{o}C, water content increases and oxygen fugacity moves towards the MH buffer. The increase of water content could be the result of open system evolutionary processes. The "acid" group crystallizes at an average temperature of 729^{o}C and at a pressure of 0.7 kbar under oxidizing conditions, between the NNO and MH buffer, suggesting a possibly different origin and/or evolution for the "acid" group.

The assessments of favorable UV conditions for human health over northern Eurasia

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UV radiation can have both positive and negative influence on human health. According to the classification of biological UV resources proposed by Chubarova (2007) we define favourable UV conditions as the conditions, when it is possible to get vitamin D3 at noon within an hour but when at the same time the UV index does not reach the high UV category. Different methods were used to estimate the thresholds for generating the vitamin D3 in the skin. One method was based on the approach, which has been proposed by Holick and Jenkins (2003), and another one was based on the recommendations given in the CIE 2006 publication. We compared both approaches by evaluating and comparing the year periods with the conditions favourable for vitamin D3 production. The periods were obtained through the calculation of biologically active irradiance using the TUV model with the 8 stream DISORT solver, and some other modifications described in Chubarova (2006). According to our estimates in midlatitudes the application of the second method leads to the increase in day number (approximately 18 days), when it is possible to get the vitamin D3 in clear sky conditions. It is necessary to emphasize that this difference takes place mainly due to the different thresholds of the skin exposure area recommended in these approaches, since both erythemally-weighted and vitamin D3 irradiance have similar absolute values at noon in spring and autumn, when a "jump" from unfavourable to favourable conditions and back for vitamin D3 production occurs. We have also revealed a large difference in sensitivity of erythemally-weighted and vitamin D3 irradiance to the changes in solar zenith angle, total