strong deformations and low-grade to greenschist facies metamorphism. The petrography of the pebbles indicates a dual provenance. (A) Almost all ophiolitic petrographies are present: basalts and dolerites (pillow-lavas included), gabbros, diorites, plagiogranites. (B) Pebbles (dominant in the upper parts of the section) from low-grade metamorphics of the Circum-Rhodope flysch or of shallow marine origin (coral-bearing limestone included). Coral remains from a conglomerate pebble found at Aghios Georgios have been determined in the past as Late Jurassic to Early Cretaceous. The age of the conglomeratic formation itself is uncertain – it may be Late Cretaceous or Palaeogene.

The Palaeogene terrigenous formation of Samothraki is referred to the Upper Eocene. However, the lowermost parts of the profile may be of pre-Priabonian, and the uppermost ones, of Early Oligocene age. The formation covers unconformably and transgressively the ophiolites or follows over the conglomeratic formation. Sandstones and siltstones with shaly and limestone interbeds are dominant, in the middle parts of the section being interbedded with thick limestones (packstone and wackestone) rich in foraminifers, corals, corallines, bryozoans, echinoderms, gastropods and bivalves. Locally (Kastro at Hora), the section begins directly with the limestone beds hinting at possible reef facies wedging out inside the sandy molasses facies, and passing into olistostrome. The sedimentary microfacies of the limestones correspond to a proximal middle carbonate platform, and may be correlated with similar facies in Thrace. The limestone beds are usually strongly tectonized, and in the basal parts and along contacts with the basement have been subjected to low-grade metamorphism. Near the Kastro at Hora, thin Palaeogene limestone beds are observed as tectonic insertions within the ophiolites of the basement. Strongly fractured limestone interbeds are often boudinaged, and parts of the section pass into mélange of mixed sedimentary and tectonic origin.

Comparisons with the Palaeogene rock sequences and environments of nearby Rhodope and Thrace basins enable reconstructions of the palaeogeography and palaeogeodynamics. Cretaceous crustal thickening during the collisional orogeny was followed by extensional collapse of the orogen, and formation and closure of several Palaeogene troughs. The formation of the Thracian trough began in Palaeocene times, and continued throughout the Eocene. Locally in Thrace (east of Xanthi) and Samothraki, intense south-vergent thrusting is recorded. During Late Eocene time, lacustrine basins developed in the Rhodope area, and were followed by early Oligocene transgression accompanied by volcanic activity. The evolution of this Oligocene intracontinental volcanic island arc (probably formed by extensional collapse of a “plateau” overriding a detached subducting slab) ended with Late Oligocene regression, transtension along major fault belts, and Early Miocene transpression.

Climatology of Erythemally and Vitamin D Weighted Irradiance at Thessaloniki, Greece, from a NILU-UV Multi-filter Radiometer and a YES UVB-1 Radiometer

Zempila M.M.[1], Meleti C. [1], Bais A.F.[1] and Kazantzidis A.[2]

[1]*Laboratory of Atmospheric Physics, Physics Department, School of Science, Aristotle University of Thessaloniki, 54124, Thessaloniki, Greece, mzempila@auth.gr, abais@auth.gr, meleti@auth.gr*
[2]*Laboratory of Atmospheric Physics, Physics Department, School of Science, University of Patras, 26500, Patras, Greece, akaza@upatras.gr*

A UV monitoring network in Greece was established in 2004, equipped with NILU-UV multi-filter radiometers. It was designed to cover geographically Greece and Cyprus, with nine stations distributed at locations representing different environments. The NILU-UV instrument provides irradiance measurements at five wavelength bands centered at 305, 312, 320, 340 and 380 nm, with full width at half maximum (FWHM) of approximately 10 nm. The irradiance measurements at the five wavelengths are used to derive various products, among them the CIE and the Vitamin D weighted irradiances (dose rates). The measurements are recorded in 1-minute intervals and can provide sufficient details about the daily variation of irradiance.

Ψηφιακή Βιβλιοθήκη Θεόφραστος - Τμήμα Γεωλογίας. Α.Π.Θ.

One of the UVNET stations is located at Thessaloniki, Greece (40.5^{o} N, 23^{o} E) where a YES UVB-1 radiometer operates regularly. Following appropriate methodologies which depend on the type of the instrument and the available spectral information, the erythemal irradiance and the vitamin D weighted irradiance are calculated from these two instruments.

One of the aims of this study is to assess the differences of the CIE-weighted irradiance derived from the available instruments. A five-year (2004-2009) dataset of common measurements with NILU-UV and YES UVB-1 radiometer for the station of Thessaloniki is used to calculated the CIE-weighted irradiance and the uncertainties introduced by the different methods are assessed. In addition, the vitamin D weighted irradiances derived from the YES UVB-1 radiometer with two different methodologies are compared with those retrieved from NILU-UV.

Based on our findings, the risks versus the benefits of the solar UV radiation are discussed for the station of Thessaloniki in Greece.

The Late Miocene floras from Crete; vegetational and palaeoclimatic trends

Zidianakis G.[1], Iliopoulos G.[1,2] and Fassoulas C.[1]

[1]*Natural History Museum of Crete, University of Crete, PO Box 2208, 71409, Irakleio Crete, giannizidi@yahoo.gr, fassoulas@nhmc.uoc.gr*
[2]*Department of Geology, University of Patras, 26504, Rio Patra, Greece, iliopoulosg@upatras.gr*

On the island of Crete, three Late Miocene outcrops have been discovered so far consisting of significant terrestrial plant macro-remains that have provided a considerable amount of floristic data and constituted the material for a series of palaeobotanical studies in the recent past. The oldest outcrop is located at the southern part of central Crete, near Pitsidia village in the Messara basin, where radiometric data from superjacent layers yielded an age of around 10.5 million years ago, into Early Tortonian. The recovered plant assemblage is still under investigation by the authors and todate its taxonomic composition includes more than 25 different taxa. The second outcrop is located near Makrilia village in the eastern part of the Island in Ierapetra basin. The palaeoflora consists of 62 identified taxa and the age of the sediments is defined by integrated biostratigraphy of dinocysts and nannoplankton as Late Tortonian, approximately 7.7 to 8.6 million years. The youngest plant assemblage originates from different small outcrops exposed near Vrysses village in the homonymus sedimentary basin in the western part of the Island. It includes 19 identified taxa and is assumed to be of Latest Tortonian – Early Messinian age, based on biostratigraphic considerations (ca. 6.0 to 7.5 million years). For the Makrilia outcrop, pollen and spores data exist as well, while a few more palynological reports are available from other contemporaneous sediments from the Island.

As these palaeofloras cover a time span of about 5 million years of the Cretan vegetation history, comparing the floristic data, valuable information about the possible changes in floristic composition, the vegetation succession and the evolution of climatic conditions during this period of the ancient Cretan region can be revealed. However, the interpretation of the plant assemblages and the extraction of definite conclusions are rather risky due to the inadequate number of floras, their particularly different depositional environment and undoubtedly the taphonomical bias.

The discovered plant macro-remains comprise mainly of foliage (impressions, seldom carbonized compressions) and less frequently of fruits, seeds, shoots, flowers and inflorescences. The preservation quality varies significantly from bad to almost excellent but generally is characterized as fairly fine.

Floristically, the three palaeofloras share only a few common species, like *Quercus mediterranea* Unger, *Acer pseudomenspessulanum* Unger, *Buxus pliocenica* Saporta et Marion and *Daphnogene polymorpha* (A. Braun) Ettingshausen. However, the assemblages from Makrilia and Pitsidia are obviously closer, as they share many taxa like the wetland plants *Myrica lignitum* (Unger) Saporta, *Taxodium* Rich., *Equisetum* L., *Populus* L., *Salix* L. and some, more or less, mesic arboreal elements including *Fagus* type *attenuata*, *Quercus*

Ψηφιακή Βιβλιοθήκη Θεόφραστος - Τμήμα Γεωλογίας. Α.Π.Θ.