

## **FIELD TRIP 1 – duration 3 days. Transportation: bus**

Tuesday August 26, 2014 - Thursday August 28, 2014

*IGCP609 Field trip on Cretaceous cyclic sedimentation in the Eastern Carpathians.*

- Lower Cretaceous Urgonian/platform facies,
- Lower Cretaceous black shales
- Deep-water sections with Cretaceous cyclic CORBs

*Degree of difficulty and weather:* low, most of the stops are beside or near roads, although a couple of short (less than 1 km) hikes will be involved. Sturdy footwear is recommended.

### **First day 26<sup>th</sup> of August**

Bucharest-Focsani-Lepsa

Outcrops displaying Lower Cretaceous black shales, followed by Albian up to Coniacian red shales will be examined in the Putna Valley Basin (Marginal Fold Nappe, Vrancea Halfwindow).



**Albian black shales and red shales at Lepsa**

**Turonian red shales in Putna Valley**

Overnight in Lepsa

### **Second day 27<sup>th</sup> of August**

Lepsa-Covasna-Cernatu-Brasov-Bran-Dambovicioara

- Covasna Valley: mid Cretaceous black shales and red shales; mid-Cretaceous anoxic events; Upper Cretaceous red variegated marlstones (Outer Moldavides, Tarcau Nappe).



**Mid Cretaceous red shales**



**Upper Cretaceous red marlstones**

- Cernatu Valley: Albian turbidites, followed by Upper Albian dark grey shales and uppermost Albian-lowermost Cenomanian red shales, including OAE1d.
- Visit of the medieval Braşov town.

**Braşov** known as *Kronstadt* in German or *Brassó* in Hungarian is the 7th largest city in Romania. The town is located almost in the centre of Romania (176 km from Bucharest), being surrounded by the Carpathian Mountains. The city provides a mix of wonderful mountain scenery in the nearby Poiana Braşov (a renown winter resort) and medieval history with German influences in the old town.

Small outcrops of Urganian rocks could be seen in the town. Besides, most of the old monuments and houses, dating from the 16<sup>th</sup> -17<sup>th</sup> Century have been made by Cretaceous rocks, i.e. limestones and sandstones..



View of **Braşov** downtown

Overnight in the Dambovicioara-Rucar area

## Third day 28<sup>th</sup> of August

Dambovicioara – Bran

- The Lower Cretaceous sedimentation of the region (included in the Getic Carbonate Platform) mainly displays Berriasian-Hauterivian marlstones, as well as Barremian-Aptian reefal limestones, characteristics for the Urgonian facies.
- Visit of the Bran Castel. The castle is placed on an impressive Lower Cretaceous sedimentary klippen, mainly constituted of limestones, included in a polymictic facies, i.e. the conglomerates of the Braşov Formation.



The Bran Castle is a national monument and landmark in Romania. The fortress is situated on the border between Transylvania and Wallachia, being known as "Dracula's Castle". In 1212 the Teutonic Knights built the wooden castle of *Dietrichstein* as a fortified position in the Burzenland at the entrance to a mountain valley through which traders had traveled for more than a millennium. The first documented mentioning of Bran Castle is the act issued by Louis I of Hungary on November 19, 1377, giving the Saxons of Kronstadt (Braşov) the privilege to build the stone citadel on their own expense and labour force; the settlement of Bran began to develop nearby. The castle was built on a klippen of Lower Cretaceous limestone. The castle belonged to the Vlad III, Dracula, known as Vlad Tepes (Vlad the Impaler) who ruled Wallachia in the 15<sup>th</sup> Century. In the 20<sup>th</sup> Century, the castle was gifted to Queen Marie of Romania by the citizens of the Brasov town (the owners), after Transylvania became a Romanian province in the early 1920s; Queen Maria restored it into its present state. The castle was inherited by one of her daughters, Princess Ileana. In 1950, after expropriation by the Communist government, the castle became a national monument to which was added a museum of restored village buildings. In 2009, after 61 years of the Romanian state ownership, the Bran Castle was returned to the children of Princess Ileana of Romania, Dominic Habsburg, Elisabeth and Maria-Magdalena.

- Upper Cretaceous variegated marls at Pietrosita

At the southern end of the Eastern Carpathians, Upper Cretaceous variegated (white and red) marlstones, known as Gura Beliei Formation, crop out. These sediments are the post-tectonic cover of the Dacide and Moldavide nappes of the Eastern Carpathians.



**Campanian-Maastrichtian red and white marlstones in the Ialomita Valley (at Pietrosita)**

## **FIELD TRIP 2 – duration 4 days. Transportation: bus**

*IGCP609 Field trip on Lower Cretaceous facies (Urgonian facies) and Upper Cretaceous facies (Gosau) in the Southern Carpathians, as well as Upper Cretaceous continental sediments with dinosaur remains in the Hateg area*

*Degree of difficulty and weather:* low, most of the stops are beside or near roads, although a couple of short (less than 1 km) hikes will be involved. Sturdy footwear is recommended.

### **First day 28<sup>th</sup> of August**

Dambovicioara – Bran – Pietrosita- Hateg

The stops are common with Field Trip 1 (Third Day). The Field trip 2 will continue to the Southern Carpathians (Hateg basin).

Overnight at the foot of the Retezat Mountains (nearby the Roman castrum of Ulpia Traiana Sarmizegetusa)

Colonia Ulpia Traiana Augusta Dacica Sarmizegetusa (built around 108-110 AD) was the capital and the largest city of Roman Dacia, later named Ulpia Traiana Sarmizegetusa after the former Dacian capital, located some 40 km to the N. The settlement was built at a distance of 8 km from Tapae, a pass between Banat and Transylvania (today known as the Iron Gates of Transylvania). The choice was based on the military and economic advantages given by the natural barrier represented by the Retezat Mountains in the south and Poiana Ruscă Mountains in the north.

The Retezat Mountains is one of the most impressive massifs of the Southern Carpathians, being the rockiest mountain in the country. In its area, the first Romanian National Park (*Retezat*) was established in 1935. In the Retezat Mountains, more than 100 glacial lakes and over three hundred flower species were identified. The area shelters one of Europe's last remaining, unaffected natural primary forest and the largest single area of pristine mixed forest. Wolves, brown bear, wild boar, lynx, wildcat, chamois, roe and red deer, as well as small carnivore species such as badger and otter populate the area. In 1979 the Man and Biosphere Program of UNESCO included the park in the international network of biosphere reserves.



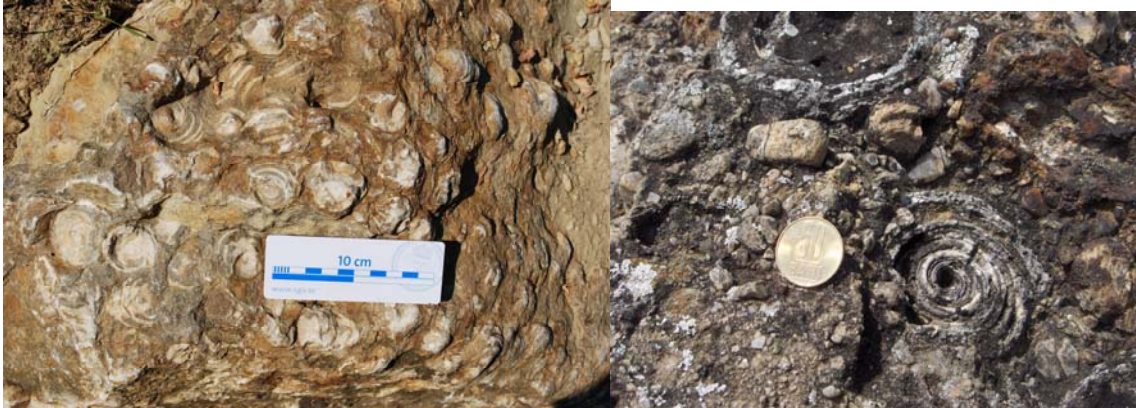
**View of the Retezat Mountains and one of its glacial lakes.**

## Second day 29<sup>th</sup> of August

Calimanesti-Ramnicu Valcea-Hateg (Southern Carpathians)

Upper Cretaceous deposits of the Hateg basin (eastern part)

- Cenomanian in the Ohaba-Ponor village
- Campanian – Lower Maastrichtian in the Ponor vilalge
- Variegated red and grey-green marine marls and clays in the Fizesti area
- Lower Cretaceous sediments in Urgonian facies



*Cenomanian beds with Actaeonella*

Campanian infralittoral deposits



Urgonian facies in the E part of the Hateg Basin    Santonian-Campanian variegated marine shales in Fizesti

Overnight at the foot of the Retezat Mountains (nearby the Roman castrum of Ulpia Traiana Sarmizegetusa)

## Third day 30<sup>th</sup> of August

- Upper Cretaceous marine variegated shales of the W part of the Hateg region
- Campanian turbidites (last marine cycle) in the W part of Hateg



Upper Cretaceous marine variegated shales at Rachitova



Campanian shally turbidites at Densus

- Upper Cretaceous continental deposits with dinosaurs in the W part of the Hateg area:  
**The Hateg Country Dinosaurs Geopark – ROMANIA**



Overnight at the foot of the Retezat Mountains (nearby the Roman castrum of Ulpia Traiana Sarmizegetusa)

## Fourth day 31<sup>st</sup> of August

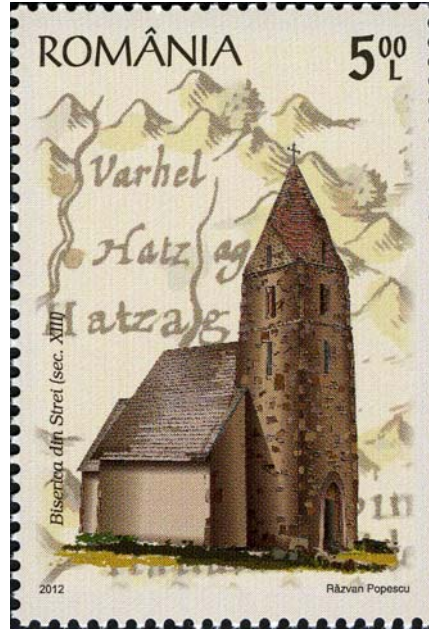
- Upper Cretaceous continental deposits with dinosaurs in the E part of the Hateg area: **The Hateg Country Dinosaurs Geopark – ROMANIA**

The Hateg region is world-wide known for its “dwarf dinosaurs” from the end of Cretaceous, 72-65 million years ago. This special paleontological heritage has inspired the name of the Geopark. Fifteen dinosaur species, both herbivorous and carnivorous from the region, were described, based on skeletal remains found in fossil fluvial and lake deposits. Dinosaur eggs and hatchlings were also discovered in the same deposits, as well as many non-dinosaur species, representing all the classes of vertebrates, from fishes to mammals. The total number of vertebrate taxa is around 65. Very spectacular in this assemblage is a huge pterosaur (flying reptile), described as a new genus, *Hatzegopteryx*, from the name of the region. This enormous creature, one of the largest flying animals ever, if not the largest one, had a wingspan of 12 m.

Another geologic event that is well documented in the Geopark is the presence of volcanic rock-tuffs, lavas and volcanic bombs marking the volcanic eruptions that took place in the region during the dinosaurs existence (i.e., Late Cretaceous Laramian phase)..

- Visit on the stone churches from Hateg - the oldest of this type in Romania and among the most interesting monuments of medieval architecture in Transylvania, built between 9<sup>th</sup>-12<sup>th</sup> centuries. Among the 16 chapels, the most impressive churches are Sântămărie

Orlea, Strei, Densuș, Ostrov, Sânpetru Orthodox Church, Prislop Monastery and Serfs church from Salasu De Sus.



**Strei Church – 13<sup>th</sup> Century**

**Densuș Church**

**The Strei church** was built over a Roman villa in the late thirteenth century. The Roman-Gothic style is combined with local elements, resulting in a unique architectural ensemble. Also, the bell tower of the church incorporates a fragment of Roman sarcophagus.

**The Densuș Church**, located at about 10 km north of Ulpia Traiana Augusta Sarmizegetusa – the former capital of Roman Dacia – and about 10 km west of the Hațeg Town Hațeg Land, has been the object of many controversies regarding its origin and age. Some historians think that the construction was initially designed as a mausoleum for the Roman General Longinus Maximus (a close friend of Emperor Trajan, the conqueror of Dacia), or that it was originally a Roman temple of God March. Other historians believe the church was built in the 13<sup>th</sup> Century. The church in Densuș is probably one of the few pre-Christian autochthonous temples remaining. The core of the building was dated in the 2nd century AD (Luca, 2005b). Some historians assume that it was transformed into a church in the 4th century by the Goths. The church in Densuș has a strange look due to the fact that it was built with river stones, with Urgonian limestones, Upper Cretaceous sandstones, bricks with Roman inscriptions, Roman column parts, funeral stones and sewage tubes, the latest materials probably taken from Ulpia Traiana Sarmizegetusa.

Return to Bucharest