winter time (57%) in Gyoma (first water gauge), the lowest was -116 cm on 3rd August in 1930. The highest water level had happened in the first five month of the year. The highest water level was 918 cm on 9th July in 1970. The biggest difference was 943 cm in 1919. In Kunszentmárton (second water gauge) the lowest water level had happened in winter time (69%) as well, and the lowest water level was -240 cm on 24th August, 1946. The highest water levels occurred in January, March, April, and May. The highest water level was 1041 cm on 21st April, 2006. The biggest difference was 1134 cm in 2006. We are dealing with measurements of alluvial deposits of floodplain, as well. The sampling was made at the Hármas-Körös River in Takács-zug. The aim of the study to find out the amount of flood deposits on the floodplain after the river regulations. Geomorphological mapping was made near Kunszentmárton and Öcsöd in scale 1:10 000. The new map demonstrates some paleo-drainage system of the study area. The thickness of alluvial deposit is increased with 150–180 cm after the river regulations on the study area. The greater part of mapped area is high floodplain; a low floodplain is deepening into this, which was perhaps a fossil riverbed. This low floodplain was occupied by Körös River. The deposits of the last few year of the 20th century could be easily recognized; it is 5–13 cm by floods.

Romanian mud volcanoes – main features and methane flux to the atmosphere

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Studies performed in the last decade have shown the importance of geological sources in releasing methane, an important greenhouse gas, following only to carbon dioxide in the ranking of global warming producing gases. The IPCC Fourth Assessment Report, released in 2007, for the first time considers the geologic source of methane beside the other natural sources taken into account in the previous reports.

Mud volcanoes are important methane releasing geological features, occurring onshore and offshore in many parts of the world. Most of them are located in compressional settings, although in some cases they may be found in other tectonic environments. Most commonly, the onshore mud volcanoes are cone-shaped, with variable dimensions, from a few meters in diameter and less than one meter in height, to several kilometres in diameter and hundreds of meters in height. The shape of the mud volcanoes depends on the nature of the expelled fluids. Convex shapes are formed when the mud is viscous, but very frequently, circular pools with muddy water occur when the mineral fraction/water ratio is very low. In Europe, mud volcanoes are distributed in some specific areas. Such features were identified in Italy, Romania, and their occurrence continues eastward on the northern shore of the Black Sea (Ukraine, Russia), and in the Caucasian – Caspian area, where the world's most impressive mud volcanoes were described.

The most important Romanian mud volcanoes are located in Berca area (Carpathian Foredeep), close to the bending zone of the Carpathian chain. These mud volcanoes are distributed in four distinct areas: Paclele Mari, Paclele Mici, Fierbatori, and Beciu, and seem to be the biggest in Europe, excepting the giant structures in Azerbaijan. In Transylvania, quite numerous methane releasing structures were identified. The mud volcanoes here are generally small, not exceeding a few meters in height and tens of meters in diameter. In some spots, dry gas emissions occur.

In the past years, the methane flux was measured by using the classical closed chamber method. After the chamber deployment, gas samples were collected by syringes and analysed in the laboratory by gas chromatography. Recently, an innovative measuring method was introduced by using a portable methane and carbon dioxide fluxmeter. Specific sensors for the two gases are connected to the accumulation chamber, and after deploying the device in the field, the gas concentrations are measured and fluxes derived. This new method has been used until now in Transylvania and a total flux of about 680 t CH_4^{y-1} was estimated for the

investigated areas in the Miocene basin of Transylvania. The total methane flux in Berca area is exceeding 1000 t CH_4 $^{y-1}$.

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Stones and quarries of Castle of Chambord, France

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The project "SACRE" is based on the achievement of a health record from Chambord castle and aims to provide a basis for scientific monitoring and planning of restoration work using health and aesthetic specific criteria. The collected data (nature of degradations, weather measurements, architectural and historical archives) are used to reference all the information necessary to establish a detailed diagnosis of the state of alteration of the monument.

This program of research both fundamental and applied is divided into 5 parts:

1. The CAD modelling aims at constructing a graphic base used to gather all data acquired during the project.
2. The realization of the health record of the book will reference all the information necessary to establish a detailed diagnosis of the state of alteration of the monument: mapping of degradations, weather conditions, architectural and historical archives.
3. The simulation and prediction of degradations, which is the most fundamental step of this research program, is to simulate both in sequences of experimental laboratory and in numerical modelling the process of degradations in order to understand their evolution and to estimate their kinetics.
4. The creation of a tool for decision support is the application of simulation to work, and aims to estimate the rate of degradation. Added to that a costing of restoration, this software tool will provide a rational schedule of restoration work.
5. The valuation of the project to the public will be achieved by giving an access to a simplified version of the software, presented at an exhibition at Chambord.

The castle has undergone many restorations and architectural changes that have resulted in replacement of stones. Dating and identification of rocks were determined by searching in the historical and architectural archives that are sometimes incomplete. In developing the health record of the castle, we aim to identify and localize all the stones used over the time since the sixteenth century for the construction and for the restoration.

The 'tuffeau', porous chalk-lime and with very low mechanical strength, is the stone most commonly used in construction of buildings in the Loire Valley. It was also used for construction and restoration of the castle of Chambord. Stones used in the sixteenth century from quarries that are no longer used today. Over the successive restorations, new quarries have been opened.

The objective of this study is to identify geographically the various careers that have served the construction and restoration of the castle of Chambord, and locate the different stone facades employed. Indeed, these stones juxtaposed on the building are not always compatible. Correlating these data with the changes observed on the walls can give indications about the evolution of alterations observed on the chateau.