CENTRE DE LINGUISTIQUE APPLIQUÉE
UNIVERSITÉ DE FRANCHE-COMTÉ

Presenting Research Papers in English at a Colloquium

A Simulation at the CLA (Centre for Applied Linguistics) Université de Franche-Comté / COMUE UBFC




Salle Quémada, CLA – Université de Franche-Comté

Monday March 25th and Monday April 8th 2024

UBFC
UNIVERSITÉ BOURGOGNE FRANCHE-COMTÉ

Monday March 25th – Programme

Each presentation will be followed by questions from the audience.

8:50 am - Doors open

9:05 am - Welcome and Introduction

9:10 - 9:35 am - Manon Amiot, PhD Student, Chrono-Environment Laboratory, UFR Sciences et techniques – University of Franche-Comté, CNRS

Mass transfer mechanisms in the deep continental crust : Example of the garbenschiefer formation in the Neves area in the Italian Alps.

Fluids within the deep continental crust (>15 km) have an important role in many geological processes. As a major mass transport vector their circulation generates, for example, the formation of ore deposits. Despite the presence of many indicators such as mineralized veins, mechanisms of fluid circulation within the deep crust are still poorly constrained. The characterization of the fluid can be made by the study of metasomatic rocks. These processes are extensively studied, combining different approaches. However, control factors, such as fluid chemistry, P-T conditions and phase relationships, the degree of disequilibrium between the fluid and the host rock must be clearly identified. The studied object comes from the Tauern window, in the Eastern Alps. It's the transformation of a granodiorite into chlorite- and amphibole- micaschists (garbenschiefer). From the petrographic and geochemical study coupled with thermodynamic modelling, it is possible to quantify the amount of mass transfer (loss/gain) along the defined reequilibration path and, ultimately, to estimate the required fluid flow.

9:35-10 am – Kevin Kana, PhD Student, FEMTO-ST, University of Franche-Comté, CNRS.

Self-supervised Learning: Dense associative memory

Deep neural network training on a single machine has become increasingly difficult due to a lack of computational power. Fortunately, distributed training of neural networks can be performed with model and data parallelism and sub-network training. A general mathematical framework was introduced to study the convergence of distributed asynchronous training of deep neural networks with a focus on sub-network training. Hence, the convergence conditions in synchronous and asynchronous modes were studied. An asynchronous and lock-free training version of the sub-network training is proposed to validate the theoretical study. Experiments were conducted on two well-known public datasets, namely Google Speech and MaFaulDa, using the Jean Zay supercomputer of GENCI. The results indicate that the proposed asynchronous sub-network training approach, with 64 GPUs, achieves faster convergence time and better generalization than the synchronous approach.

10 am - Break

10:15-10:40 am – Elia Roulé, PhD student, Chrono-Environment Laboratory, University of Franche-Comté, CNRS.

Hunter-gatherers in Nunatsiavut (Labrador, Canada): tracking human impact on the environment during the last millennium.

The Nain region including its archipelago (56° 32'32''N; 61°41'34''W) has been studied for long-term climate dynamics and human occupation. The last migration wave, known as the Thule Culture, reached northern Labrador in the late 13th to early 15th century during the Little Ice Age, until the 19th century. These maritime-focused societies, descendants of a continental lineage, demonstrated remarkable adaptability in navigating the challenges posed by this climatic transition. By focusing on South Aulatsivik Island, our multi-proxy study allows us to better understand the ecological resilience displayed by Thule-Inuit hunter-gatherers in adapting to changing ecosystems. Closing Remarks. Each presentation will be followed by questions from the audience.

Closing Remarks

Monday April 8th – Programme

8:50 am - Doors open

9:05 am - Welcome and Introduction

9:10-9:35 am – Justine FRISON, PhD student in Ecology, Chrono-Environment Laboratory, University of Franche-Comté, CNRS.
Carbon sequestration in inland waterbodies: quantification, controlling factors, and interactions with biodiversity.

Inland waterbodies cover 3.7% of continents. Despite their low spatial extent, it has been estimated that they can stock similar quantities of organic carbon in their sediments to that in oceans. However, those estimations rely on few observations compared to the global number of waterbodies and are computed with data obtained from large natural lakes, overlooking the rich typological diversity of inland waterbodies. The objective of the project is to put forward an evaluation of the carbon sequestration service offered by inland waterbodies, aiming to identify and understand the functional mechanisms driving organic carbon fate in those systems. It relies on the synthesis of existing data and the acquisition of new observations in sites covering a broad typological gradient in terms of nature, surface, land occupation, climatic conditions, and anthropogenic impacts. The original method is based on the integration of observatory and retro-observatory approaches, through the analysis of sedimentary records.

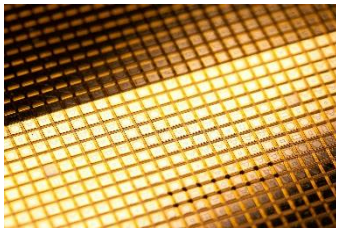
9:35-10 am – Alban Cheviet, PhD Student, Chrono-Environment Laboratory, University of Franche-Comté, CNRS - Laboratory of the Ocean Crust, University of Bremen, Germany.
Magma-sediment interactions, impact on carbon and sulfur cycle in sedimentary basins.

The opening of sedimentary basins is often accompanied by magmatic activity, and the emplacement of magmatic sills in the sediments. Contact metamorphism at the edges of the sills releases large amounts of volatiles (H2O, CO2, CH4, and H2S), disrupting the carbon and sulfur cycle within the basin. The volatiles then migrate towards the seafloor and may be released into the oceans and the atmosphere. The interactions between the produced fluids and the rocks remain unclear, especially when the fluids remain trapped within the metamorphic aureoles or are incorporated into the magma. Based on samples collected during the IODP Expedition 385 in the Guaymas Basin, a mineralogical and geochemical study of magma-sediment mixtures. A thermodynamic modelling approach was carried out in order to quantify the transfer of volatiles in sedimentary basins.

Closing Remarks.

10 am : Informal get-together / networking time with participants.



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