NEWSLETTER N°1 – SEPTEMBRE 2020

# IGCP 667 Project

HTTPS://CCGM.ORG/EN/CONTENT/10-IGCP-667

## NEWS AT A GLANCE

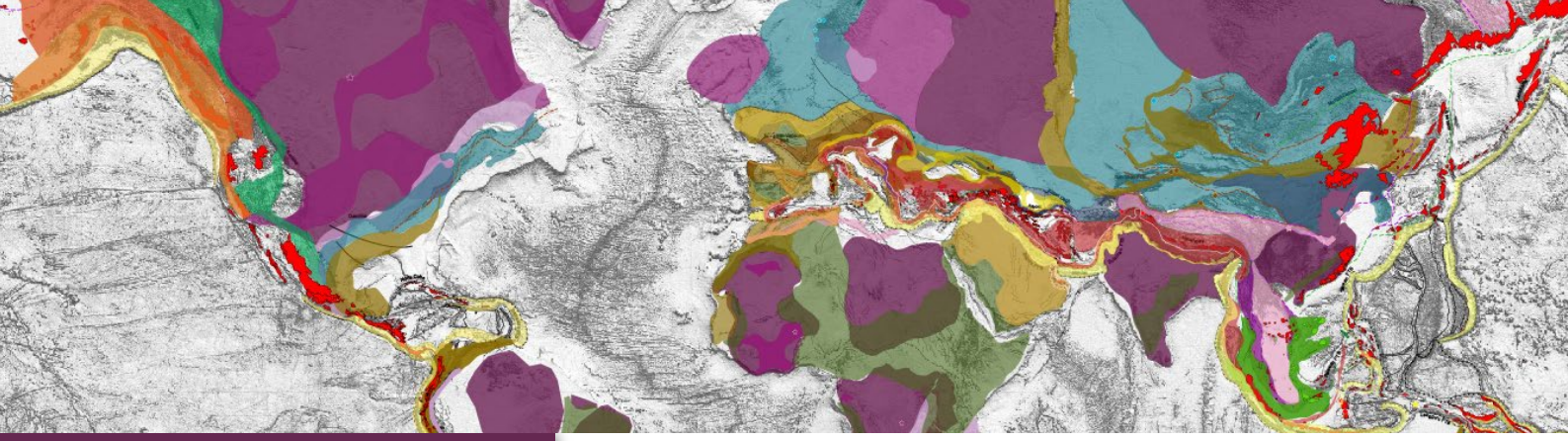


## FOREWORD

*Due to the current health situation related to the global Covid19 pandemic, our annual IGCP meetings had to be cancelled and postponed to 2021. However, the 667 IGCP group carries on its activity this year, and offered to create mini-courses based on the project "Map of the Orogens" related to specific topics of mountain ranges and tectonics, each corresponding to a specific map.*
*Online courses are extensively used during this particular time and may be a great educational tool for our IGCP project. These courses will be accessible on the CCGM and Unesco websites as well as on a YouTube channel for a greater visibility and dissemination.*

*We wish you to stay safe and continue our journey together with our IGCP Project.*

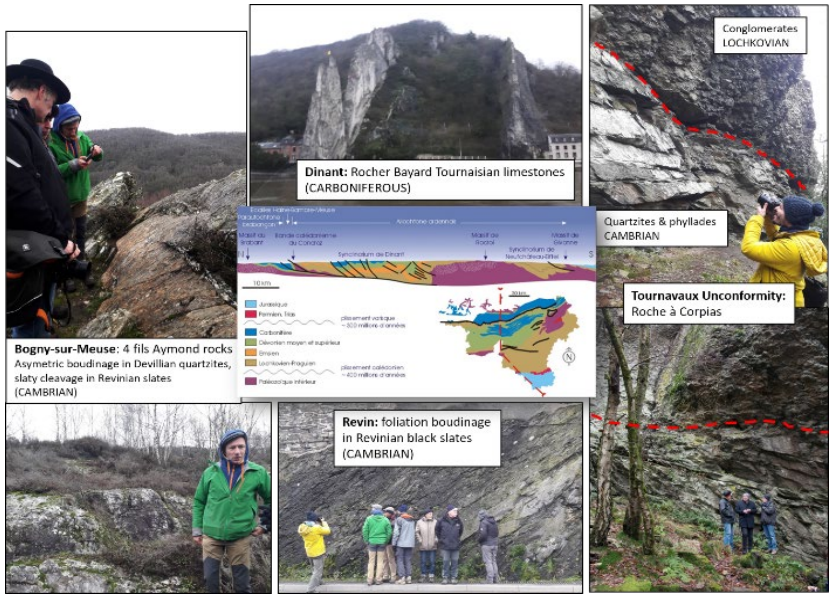
***Manuel PUBELLIER, Camille FRANÇOIS, Christian ROBERT, Romain BOUSQUET & Siti Nur Fathiyah JAMALUDIN, IGCP 667 CO-Pis***



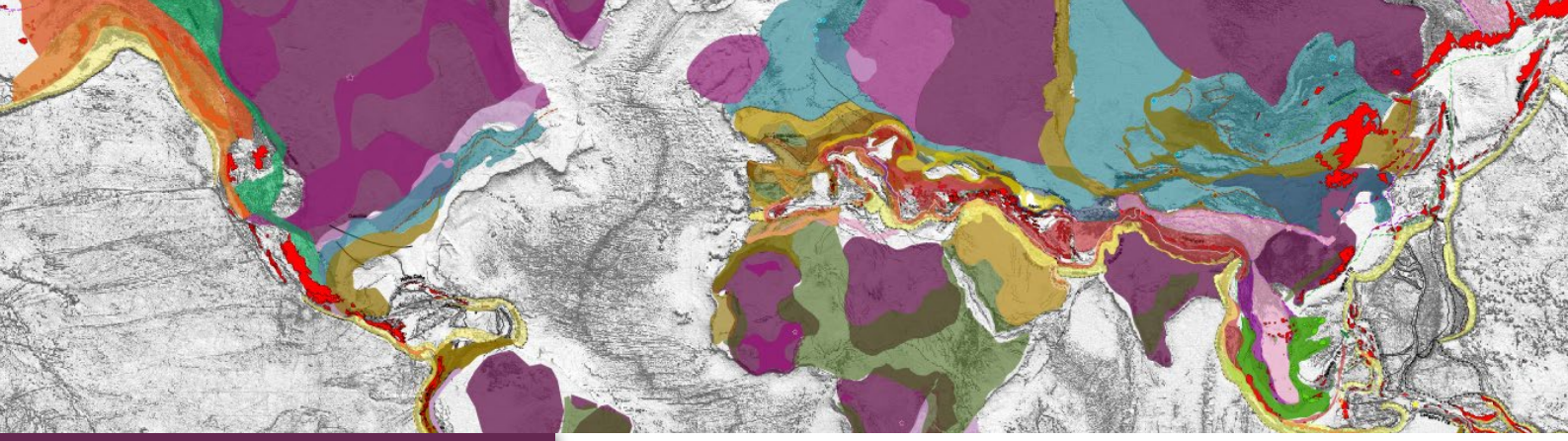
December 10th-12th 2019
Africa Museum,Tervuren
(Belgium)

# I. LAST MEETING

December 10th-12th 2019
Africa Museum,Tervuren (Belgium)




This second annual meeting was held in Tervuren in Belgium on December 10th-12th, 2019 and was hosted by the Africa Museum (former Royal Museum for Central Africa).
It included two days of meeting / conferences focused on African and European orogens and old cratons in collaboration with the Africa Museum, which is a major player in the geological investigations in Africa. Once a first version of the world map was already created (including the main orogens of the different continents with their respective ages and a detailed legend), the main aim of this meeting was to focus, in particular on the design of the African continent and to present a sketch of the map in the other regions of the world.
This meeting also included a visit of the Africa Museum, especially the Geological part, and a one-day fieldtrip in the Meuse Valley, in the Belgian Brabant Massif and the French Ardennes massif, which displays a major unconformity between the Caledonian (Cambrian to Silurian) and Variscan (Devonian to Carboniferous) orogens.

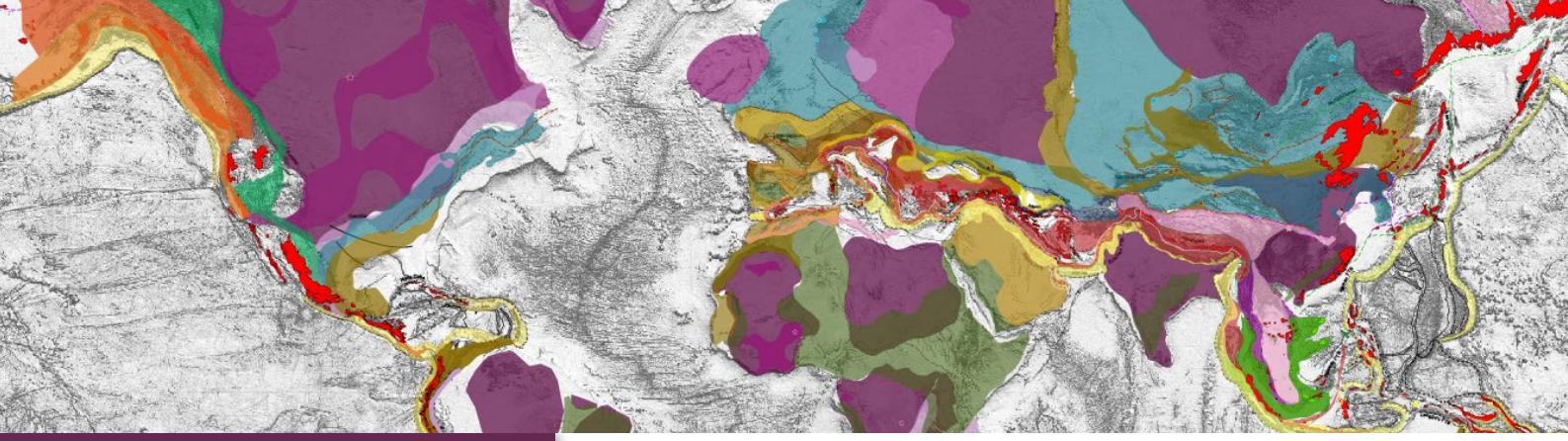


**December 10th-12th 2019**
**Africa Museum,Tervuren (Belgium)**

We held an international meeting with young scientists and students from Africa including women: a group of 25 representatives from Democratic Republic of the Congo, Cameroon, Burundi, Belgium, Germany, Turkey, France, Russia, Netherland and Switzerland.

Anne-Christine DA SILVA from the University of Liège (Belgium) was also invited to present the IGCP Project 652: “Reading geologic time in Palaeozoic sedimentary rocks: the need for an integrated stratigraphy to promote cross connections between IGCP projects.”

After one day of conferences on key zones, three working groups were created and were assigned a task to improve specific regional areas. There are namely: African continent, South and East Asia and Europe. One group is dedicated to paleo-reconstruction of continents and will better constrain the formation of the orogens through time and space.
Every working group now has a roadmap for the next months. We plan to contact specialists for the other continents. The legend will also be simplified and modified in order to better match the main colours of the ICS chart.

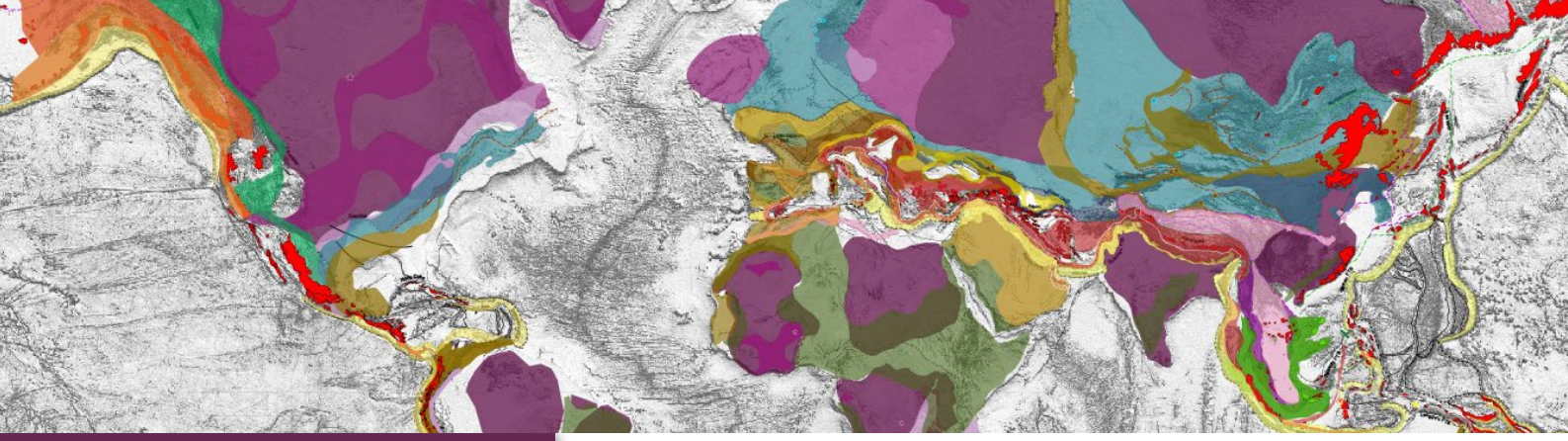


# II. LOGO & WEBSITE

- **IGCP 667 project –Website:**
https://ccgm.org/en/content/10-igcp-667

- **IGCP 667 project – Researchgate:**
https://www.researchgate.net/project/IGCP-Project-667-World-Map-of-the-Orogens

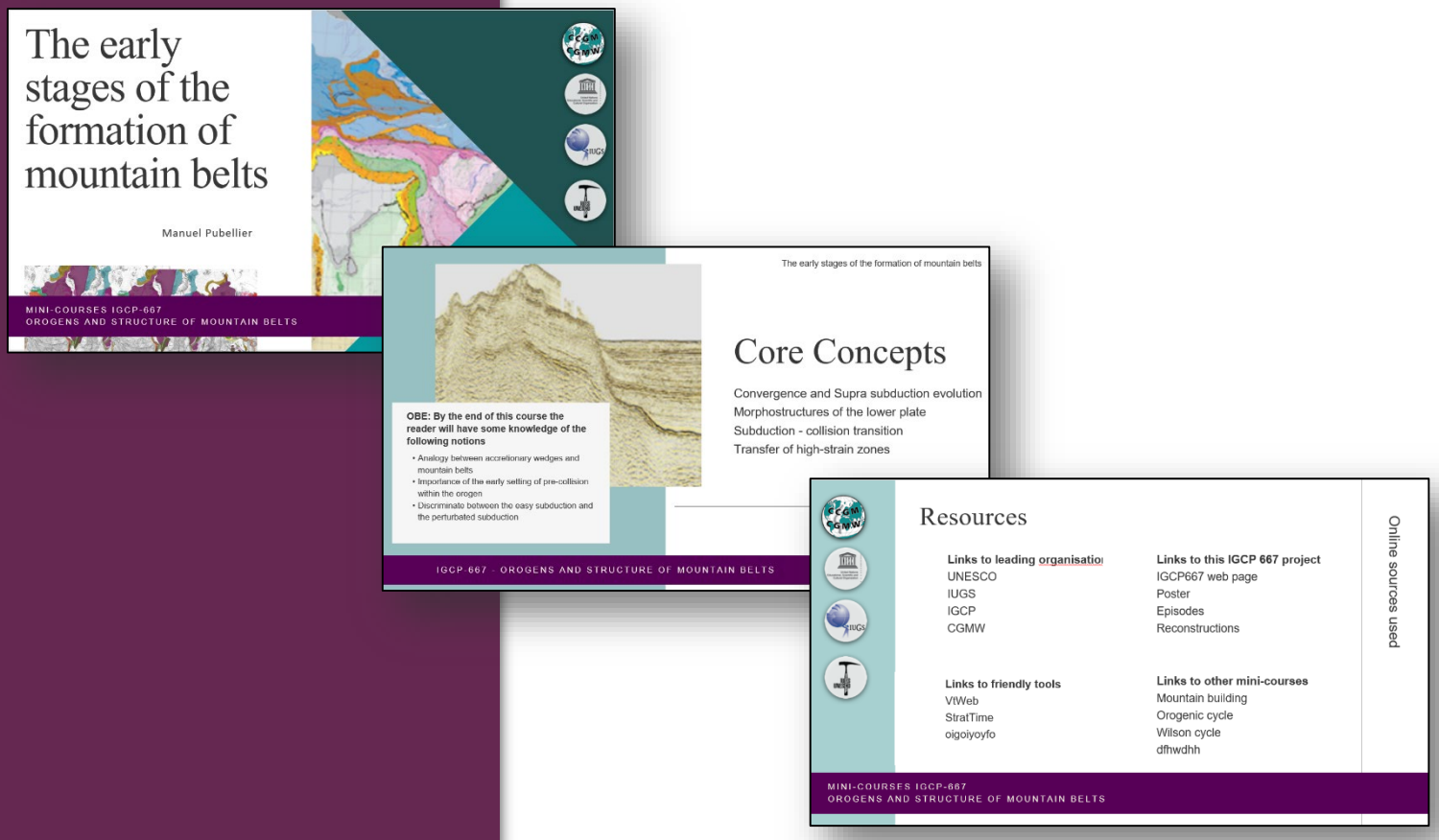
- **IGCP 667 project – Unesco:**
http://www.unesco.org/new/en/natural-sciences/environment/earth-sciences/international-geoscience-programme/igcp-projects/deep-earth/project-667/

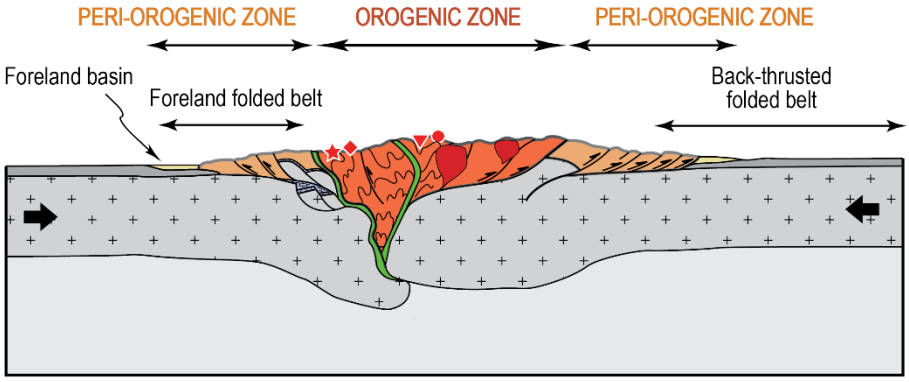


# III. MINI COURSES

Given the current health situation, we offer to create for the year to come, mini-courses based on the project "Map of the Orogens" related to specific topics of mountain ranges and tectonics.
Each will be 5 to 10 slides equivalent per lectures, accessible to non-experts, but based on solid scientific data. There will be URL links to additional information for those who are interested, and a short video for many of them.

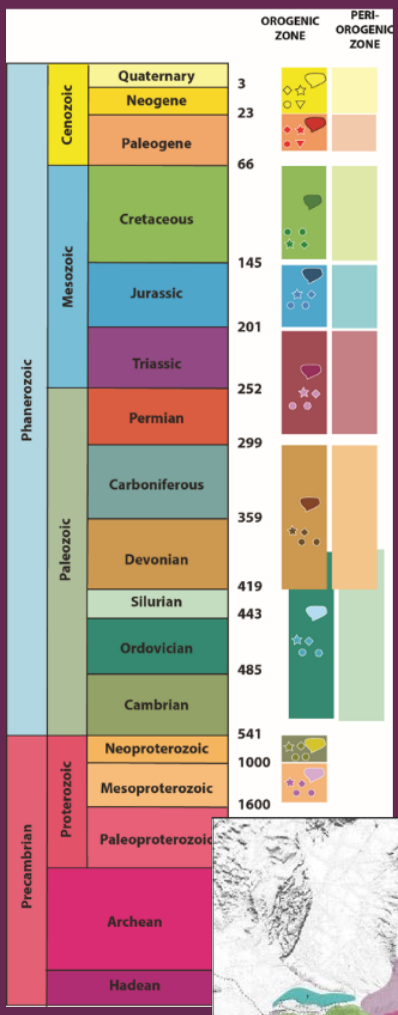
**The courses are presented in a short format and we wish to invite young scientists from everywhere around the world to submit a subject they master related to the project, and we will review it. This might be an opportunity for them to step into the community.**

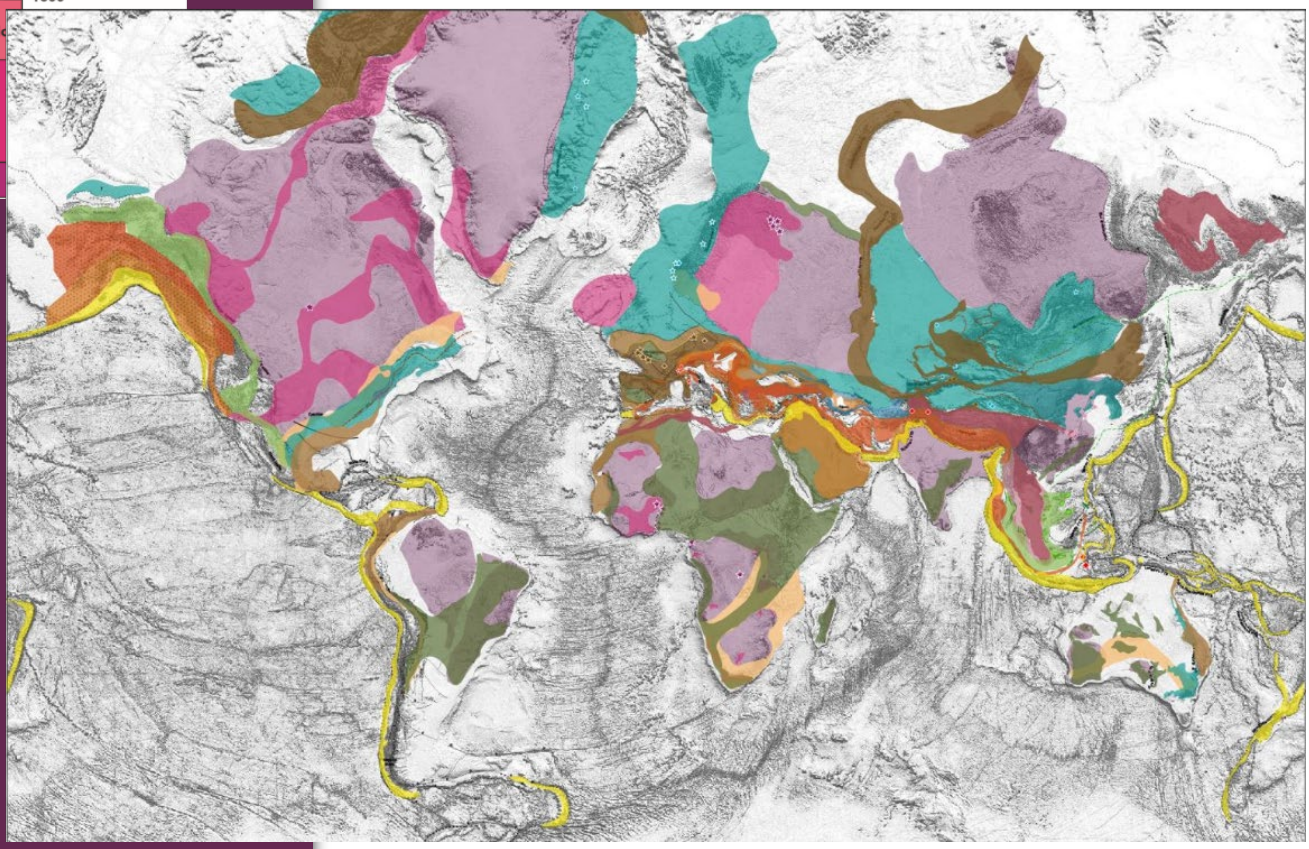





# IV. ONGOING PUBLICATION

During the discussion at the meeting in Tervuren, it was proposed that in parallel to the map compilation, we also perform reconstructions highlighting the space migration of the deformation through time. The map has been sketched globally, and the legend has been extensively discussed among the partners, following CGMW tradition, and is being sent to the regional experts in order to bring accurate information at the appropriate scale. A publication of the concept of orogens is in preparation spearheaded by Camille François, and supported by many contributors.




**Last minute RST has been postponed to next year**

**Session T18.8**

# V. FORTHCOMING EVENT

## IGCP 667 Project - Evolution of orogens through time and space: concepts from mapping visualisation

*Camille François 1,* - Manuel Pubellier 1,2 - Christian Robert 2 - Cédric Bulois 2,3 - Romain Bousquet 4 - Siti Nur Fathiyah Jamaludin 5 and the IGCP 667 Team 6*

1 Commission for the Geological Map of the World - France
2 Laboratoire de Géologie ENS Paris, CNRS (UMR 8538) - France
3 Université Côte d'Azur, IRD, CNRS, Géoazur - France
4 Kiel Institute of Geosciences - Germany
5 Universiti Teknologi Petronas – Malaysia
6 https://ccgm.org/en/content/11-team

Orogens are classically thought to develop in a convergence context involving two or more plates of continental and/or oceanic nature. They are defined as deformed crustal areas with topographic building developing from either arc-continent subduction, continental collision or inverted rift basins. However, this definition does not take into account a genetic link of lateral transitions between oceanic domains and intracontinental rifts, while extension associated with scissor-shape opening is demonstrated in many oceanic-floored basins. Herein, we propose a new concept of orogenic evolution based on the former development of extensional margins subject to shortening: we consider accretion and supra-subduction along widely-opened oceanic basins, cordilleras which precede the final continental collision when the two opposite margins finally come into contact and inverted rifts in poorly-extended continental crust. In addition, the concept does include geodynamic processes prior to plate tectonics. As we go backward in time, the main elements are out of our reach due to lack of data, lack of understanding, or a strong erosion, which unroofed the upper levels of the orogen.
To do so, we elaborate a world map of past-to-modern orogens to re-explore mountain building concepts. Our work specifically points out similarities and differences of processes through time and along-strike diachronism within opening and closure of oceanic basins. This cores the interest of IGCP 667 project “World Map of the Orogens”.

This newsletter was designed by Juliette Pubellier