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INTERNATIONAL GEOSCIENCES PROGRAMME-IGCP



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Sustainable
Development
Goals

**GEODYNAMIC
Control our Environment**

**Prof. Nellie Mutemeri,
Associate Professor, School of Mining Engineering, University of
Witwatersrand, South Africa 17-21- February 2019**



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Geodynamic Team Leader

INTERNATIONAL GEOSCIENCES PROGRAMME-IGCP



Professor Nellie Mutemeri holds PhD in Geology.

Associate Professor at the School of Mining Engineering, University of Witwatersrand, South Africa. Specialised in geochemistry, ore genesis of Archaean gold deposits and applied mineralogy, with a focus on fluid inclusion studies. A development consultant in the mining sector with research experience in sustainability, with a focus on artisanal and small-scale mining (ASM). Other areas of specialization include CSR, social impacts; mining policy & governance, legislation and strategy, responsible supply chains and ethical audits. Country experience includes Afghanistan, Colombia and many African countries, Democratic Republic of Congo (DRC), Ghana, Guinea, Liberia, Mali, Mozambique, Nigeria, Rwanda, Sierra Leone, South Africa, South Sudan, Tanzania, Uganda and Zimbabwe.



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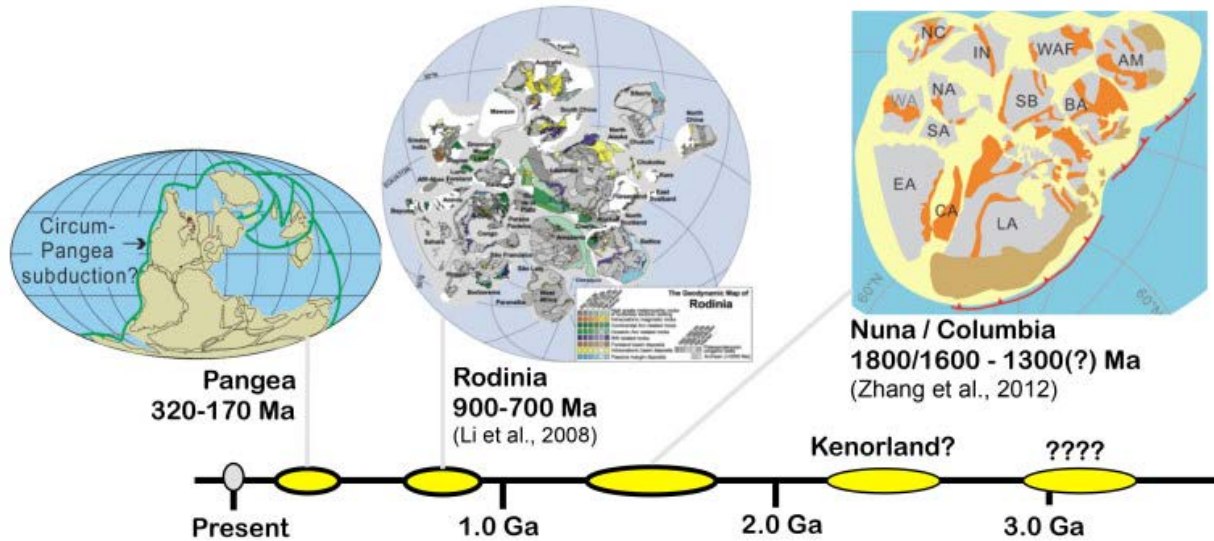


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Geodynamic Theme

INTERNATIONAL GEOSCIENCES PROGRAMME-IGCP

- ✓ Our habitable environment at the Earth's surface is linked and controlled by processes occurring deep within the Earth.
- ✓ Earth scientists use, inter alia, geophysical techniques to study deep Earth processes ranging from changes in the Earth's magnetic field to plate tectonics to understand better the Earth as a dynamic planet.
- ✓ Those processes are also relevant to natural resource exploration, distribution and management of groundwater resources and the study and mitigation of natural hazards such as earthquakes.





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Geodynamic Experts

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Safak Alunkaynak



Professor in the Dept of Geological Engineering at Istanbul Technical University. Has a PhD from the same university. She was a visiting scientist at the Open University (UK) and University of Nevada. Research focus: structure, geology, petrology and tectonics of post-collisional igneous complexes in orogenic belts.

Virginia Toy



Faculty member at the University of Otago, Dunedin, New Zealand. Taught structural geology. Field geology, tectonics and engineering geology. Research focus: Structural geology and tectonics – localisation in faults and shear zones, rheological materials, tectonic plate motions, paleoseismology and landscape evolution.

Jaana Halla



Adjunct professor at the University of Helsinki, and works with the Finnish Museum of Natural History. Research focus: formation of early continents, geochemistry and isotope systematics of granitoids. Member of the Sub-Commission on Precambrian Geology.

Ennih Nasser



Lecturer and researcher at Chouaib Doukkali University (El Jadida, Morocco). Research focus: Local and regional magmatism and geodynamics processes in the West African Craton. Life member of GSAf; Councillor of the Association Marocaine des Sciences de la Terre and Evaluator of the CNRST.



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Geodynamic Experts

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Ken-ichiro Hisada



Professor at the School of life and Environmental Sciences, University of Tsukuba. On-board scientist of Ocean Drilling Program Leg 159 Cote D'Ivoire-Ghana Transform Margin Equatorial Atlantic. Co-leader of IGCP516 and Vice-President of Geological Society of Japan and Chairperson of Editorial Board of the Journal.

Xiaochi JIN



Professor at Institute of Geology, Chinese Academy of Geological Sciences. Research focus: Evolution of Tethys and accretion of Asia. Deputy Secretary-General of the South and East Asia Sub-Commission for the Geological Map of the World. Member of the IUGS Sub-Commission on Carboniferous Stratigraphy. Member of the Academic Committee of State Key Laboratory of Paleobiology and Stratigraphy, Dep. Editor-in-Chief of Acta Geoscientica Sinica.

Reynaldo Charrier



Professor at the University of Chile. Also part-time professor at the University Andrés Bello, in Santiago. Research focus: tectonic evolution of the central Chilean Andes; Cretaceous - Tertiary boundary in the Magallanes basin; evolution of the Chilean-Argentinean Andes. Geotectonics, Field Geology, and, occasionally, Geodynamic Processes on Active Continental Margins,

Victor Mocanu



Professor of Geophysics and Dean of Geology & Geophysics, University of Bucharest; previously Associate Executive Director at American Geophysical Union, Research Geophysicist at Geological Institute of Romania. Founding Dean of the Postgraduate School, Botswana International University of Science and Technology. Research focus: large scale geodynamics of active continental margins.



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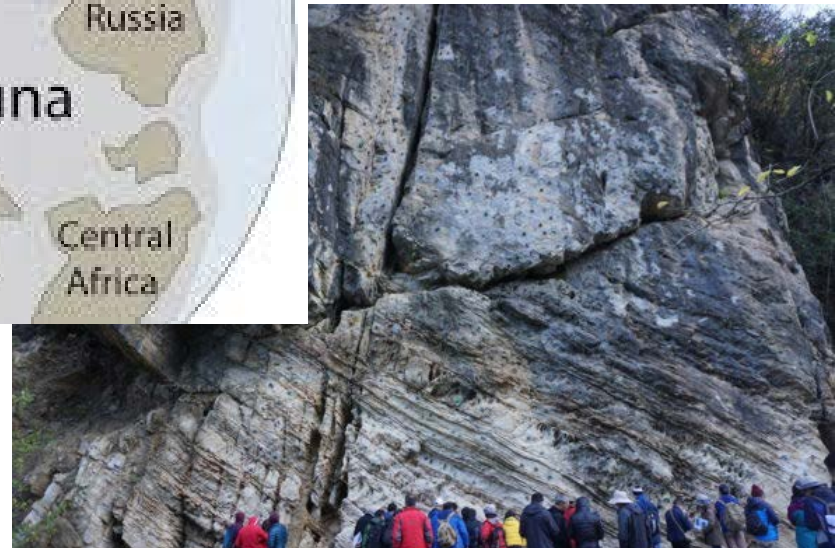
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Geodynamic Ongoing Projects

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IGCP project 648: SUPERCONTINENT CYCLES AND GLOBAL GEODYNAMICS

- ✓ History of Supercontinents
- ✓ Geodynamic processes involved
- ✓ SDG4: quality education; SDG 17: Partnerships to achieve the Goals





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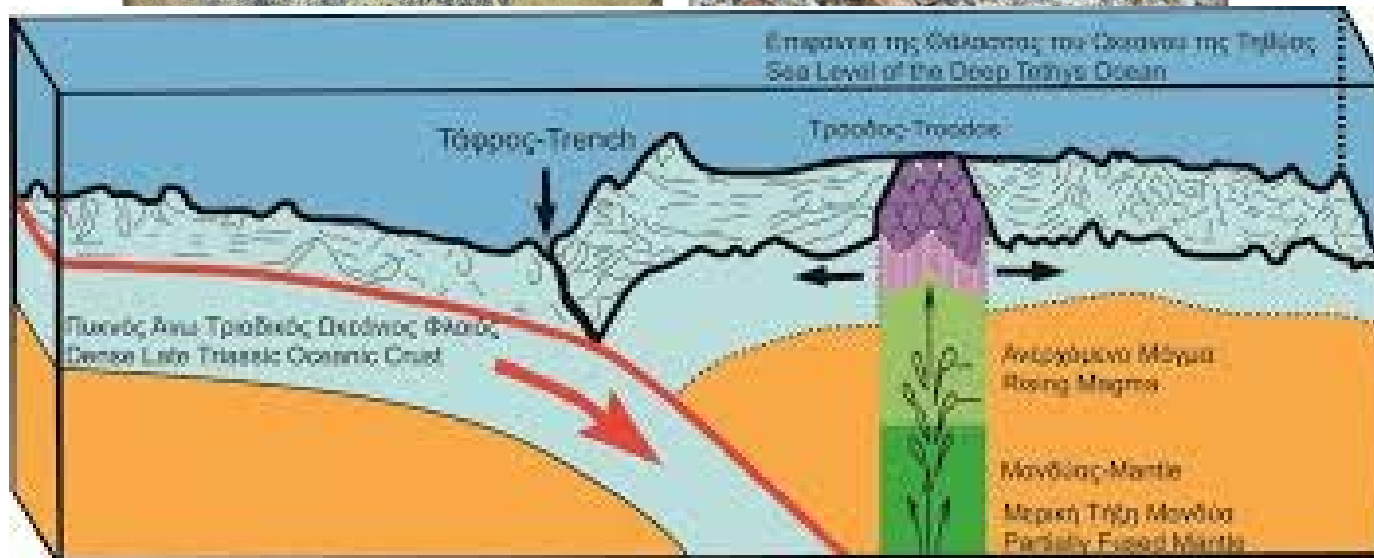
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Geodynamic Ongoing Projects

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IGCP project 649: DIAMOND AND RECYCLED MANTLE

- ✓ Occurrence of diamonds in in Chromitites and peridotites
- ✓ SD4G\$ Quality education; SDG 12: Responsible consumption and production





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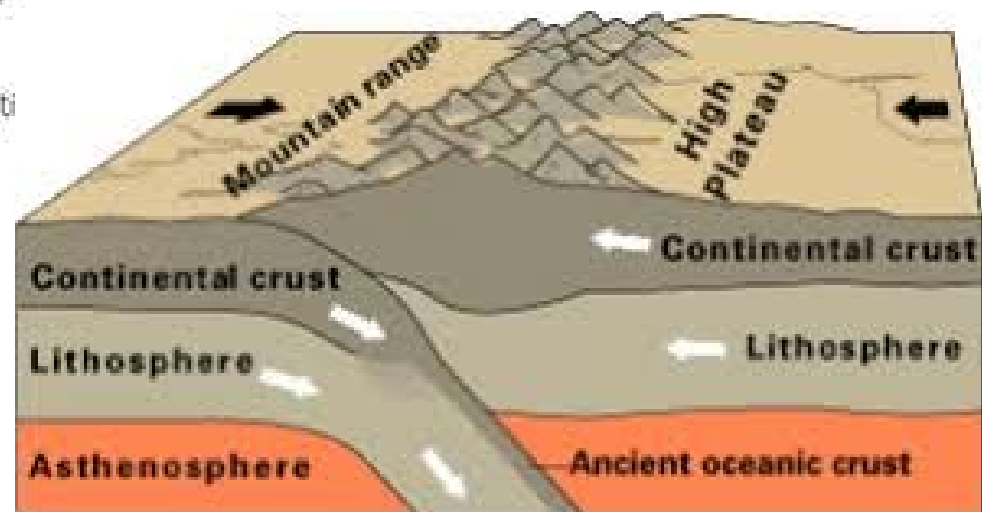
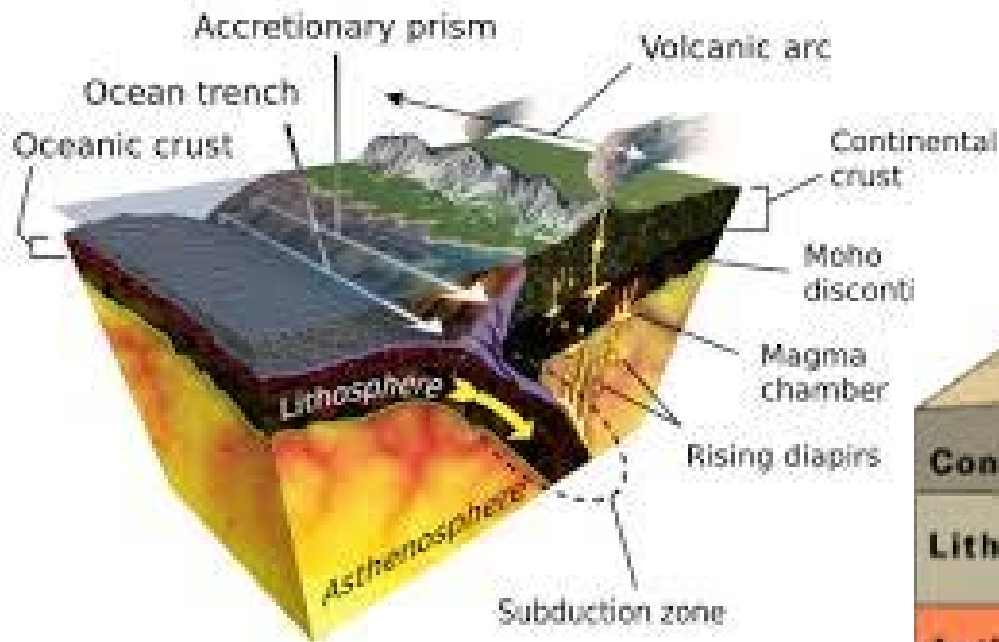
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Geodynamic Ongoing Projects

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IGCP project 662: OROGENIC ARCHITECTURE AND CRUSTAL GROWTH FROM ACCRETION TO COLLISION

- ✓ Process for earth crust formation
- ✓ Implications for the formation of ore deposits
- ✓ SDG12: Responsible consumption and production; SDG 17: - Partnerships to achieve the Goals



Continental-continental convergence



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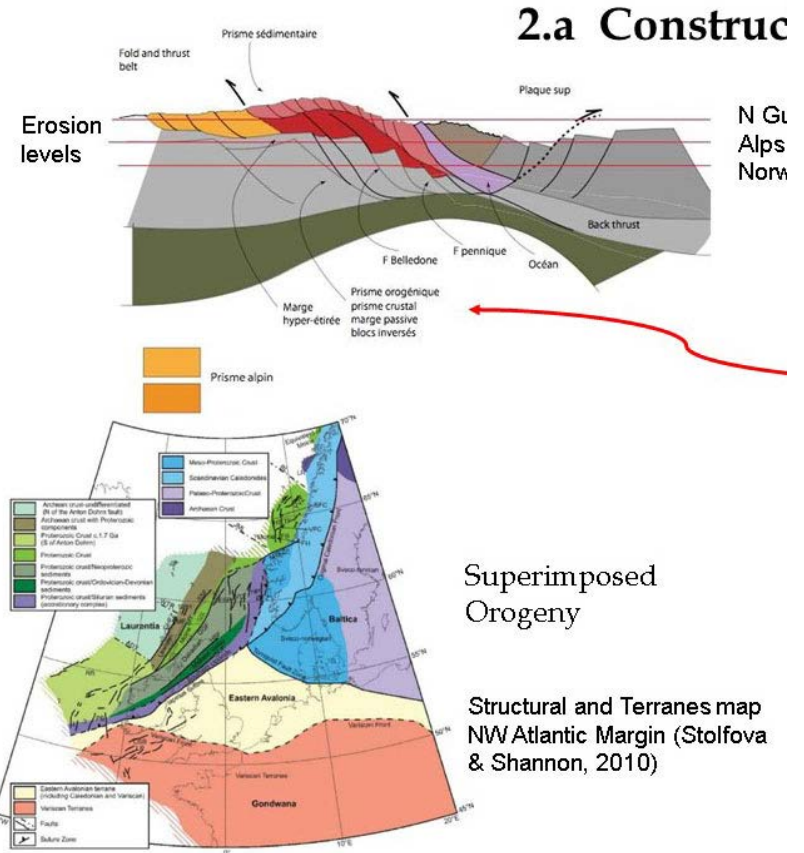
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Geodynamic Ongoing Projects

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IGCP project 667: WORLD MAP OF OROGENS

- ✓ Compile a world map of orogens
- ✓ A tool for further teaching and further research
- ✓ SDG 4: Quality Education; SDG 17: - Partnerships to achieve the Goals





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Geodynamic Challenges

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- ✓ Diversity – i.e. more women and more younger researchers needed to participate.
- ✓ More collaboration between developed and developing countries needed
- ✓ Dissemination of achievements needs to be enhanced
- ✓ Need for more collaboration amongst IGCP projects



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THANK YOU!

**Nellie Mutemeri,
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