ROOM 02 – GONDWANA DEVELOPMENT (GDEV-02)

SESSION 1 – GONDWANA TO PANGEA AND BACK

Conveners: B. Murphy (Canada) and Gabriel Gutieeerez-Alonso (Spain)

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Although the existence of Pangea is a cornerstone of plate tectonics, the mechanisms responsible are controversial. Uncertainties in the Late Neoproterozoic-Early Paleozoic history of Gondwana and its potential geodynamic relationship with the opening of the Iapetus Ocean are propagated through Paleozoic reconstructions leading to the amalgamation of Pangea. The purpose of the proposed session is study the potential geodynamic connectivity between events leading to the amalgamation of Gondwana and the opening of the Iapetus Ocean and their affect on the evolution of the Earth's crust, atmosphere, climate, and life.

SESSION 2 – GONDWANIDES

Conveners: I. Dalziel (USA), Renata Nela Tomezzoli (Argentina) and Maarten de Wit (South Africa)

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The Gondwanide Orogeny: In his classic 1937 book "Our Wandering Continents", the South African geologist Alex Du Toit mapped his "Samfrau Geosyncline" from the Sierra de La Ventana of Argentina into the Cape Mountains of South Africa and through a then unknown part of Antarctica to eastern Australia. He thereby used widely separated parts of what we now call the Gondwanide orogen as piercing points in reconstructing Gondwanaland and arguing for the hypothesis of continental drift. With the aid of marine and satellite geophysics,

detailed geologic studies and paleomagnetism, we can now accurately trace the Gondwanides from South America and Africa through the restored Lafonian and Ellsworth-Whitmore microplates to the Pensacola Mountains along the Transantarctic Mountains front. There are, however, several outstanding questions concerning the orogen, the nature and the cause of the Gondwanide orogeny. Does the orogen really extend to eastern Australia? Did all the deformation of the Cambrian to Permian succession occur after the deposition of Glossopteris-bearing Permian strata, or was there an earlier phase? What was the cause of the deformation in an orogen far inboard of the Pacific margin of Gondwanaland, at least in South American, Africa and Antarctica?
The session is planned to bring together workers in every sector of this important and enigmatic, and now far flung orogen. A Gondwana meeting on the Atlantic coast of South America seems an ideal place to convene such a session.

SESSION 3 – PATAGONIA AND ITS CONNECTION WITH THE SOUTHERN CONTINENTS

Conveners: V.Ramos (Argentina) and John Bradshaw (New Zealand)

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The purpose of the symposium is to correlate the basement and the early Paleozoic cover of Patagonia with the southern continents. The recent finding of archeocyatids in northern Patagonia, the first Cambrian austral fauna of South America, with several taxa in common with the Ellsworth Mountains and the Transantarctic region, opens striking questions on the close links of this portion of South America with the southern continents. New data on detrital zircons of the Paleozoic cover as well as the common fauna of these regions as well as precise dating of the basement will be the focus to establish a new paleogeography of this sector of Gondwana.

SYMPOSIUM – THE GONDWANA ECOSYSTEMS THROUGH TIME

This major multidisciplinary symposium will aggregate discussions about the different aspects of the environmental and biological changes in Gondwana since the Proterozoic until the Cretaceous. Integrated data concerning tectonics, geochemistry, stratigraphy and paleontology allowing more accurate paleogeographic reconstructions will be addressed here.

The climate evolution and the relationships between terrestrial and oceanic environments as a response to biological changes through time are the main focus.

This symposium will be divided in three sessions:

SESSION 4 – Neoproterozoic to Eo-Paleozoic

Convener – Claudio Gaucher (Uruguay) and Alcides Sial (Brazil)

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The Neoproterozoic Era (1000 to 542 Ma) and the Cambrian-Ordovician probably represent the most eventful period in Earth history. Against the background of dramatic paleogeographic changes, such as the amalgamation and breakup of Rodinia and subsequent accretion of Gondwana, profound environmental changes irreversibly altered Earth's ecosystems.

Dramatic events include the most severe glaciations in Earth history, large-scale perturbations of the carbon and sulphur cycles, final oxidation of surface environments, global oceanic anoxic events, the advent and explosive diversification of animals and skeletonized organisms, the oldest evidence of predation, and the colonization of the infaunal niche ("agronomic revolution").

Gondwana bears an extensive record of all these events, and is thus a key area for documenting and unravelling the causes and significance of environmental revolutions. Participants are encouraged to submit

contributions dealing with Neoproterozoic-Eopaleozoic paleoclimatic events, chemostratigraphy, biostratigraphy, paleontology and the interplay between the latter and tectonic events.
The conveners will make arrangements to publish the full papers of the contributions in a special volume of an international journal.

SESSION 5 – Paleozoic basins and sequences

Convener – Margot Guerra Sommer (Brazil), Edison J. Milani (Brazil) and Egberto Pereira (Brazil)

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Right after Gondwana's cratonization in the Early Ordovician, flexural, large-scale intracontinental basins evolved spanning all Paleozoic Era. The history of cratonic sedimentation and subordinated magmatism during Gondwana time is well documented in the Paraná and Cape-Karoo systems, where a set of second order supersequences reveals a succession of episodes of subsidence and intervening major unconformities.

The Ordovician-Silurian package holds a remarkable record of the early appearance of vegetation upon the continents; the Devonian supersequence bears thick sections of petroleum source rocks. In the Carboniferous the rock-record of the largest Gondwana's glaciation can be observed in its full-extent. The Permian register in Paraná and Karoo basins show important deposits of coal - some of them with associated reserves of uranium - as well as petroleum source rocks and reservoirs.

The "Paleozoic basins and sequences" session will be a great opportunity for researchers both from the university and from the

industry to exchange knowledge on all-time interesting issues, so the conveners are glad to invite potential contributors to submit their abstracts to Gondwana 14.

SESSION 6 – Mesozoic

Conveners – Ismar S. Carvalho (Brazil), Sankar Chaterjee (USA),
François Guillocheau (France)

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