

GONDWANA 14 – “East Meets West”

Field Trip PreGo-2 – The Brazilian counterpart of the Araçuaí-West Congo Orogen

The Araçuaí-West Congo Orogen, developed during the amalgamation of West Gondwana by the end of Neoproterozoic Era, is a key feature for the South America-Africa links. After the opening of the Atlantic Ocean in the Cretaceous, South America inherited 2/3 of the Araçuaí-West Congo orogen, including glaciogenic fill units of its precursor basin, all ophiolite slivers, the whole magmatic arc, collisional and post-collisional plutons, syn-orogenic basins, and a variety structures related to extensional collapse (see geological map and photos). The Araçuaí-West Congo orogen is also birthplace of concepts such as “*confined orogen*” and “*nutcracker tectonics*”, which will be discussed in the course of the field trip. Starting in the São Francisco craton and ending in the roots of the Araçuaí orogen in eastern Brazil, this field trip represents a journey from shallow (< 5 km) to deep (> 30 km) crustal levels. Most of the exposures to be examined were subjects of detailed studies, including precise U-Pb age determinations. They will provide the participants with a general view of Araçuaí orogen, and thus afford the opportunity to discuss outcrop evidence of processes involved in the evolution West Gondwana. Participants will also have a chance to visit historical places, like the town of Diamantina (the diamond land), and to admire the scenic beauty of the Brazilian highlands.

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Period of the field trip: September 18th – 24th, 2011

Participants: 10 (minimum), 25 (maximum)

Registration deadline: May 31st, 2011

Registration fee: 800 USD (it includes transportation by bus or minibus, accommodation in double rooms, breakfast, lunch and dinner during the field trip, and the field trip guide)

SCHEDULE

Day 1 – Sept 18th, Sunday

5:00 PM: meeting and check-in at the **Hotel Fazenda Confins** (www.hotelfazendaconfins.com.br), close to the International Airport Tancredo Neves (informally called *Confins airport-CNF*) of Belo Horizonte, Minas Gerais State.

6:00 PM: pre-field trip meeting.

8:00 PM: ice-breaker dinner.

Day 2 – Sept 19th, Monday**8:00 AM: departure to Diamantina.****6:00 PM: Hotel Relíquias do Tempo, Diamantina** (www.pousadareliquiasdotempo.com.br)

This day will be devoted to geology of the São Francisco craton and its boundary to the Araçuaí orogen. Basement and Neoproterozoic cover of the craton, as well as Statherian and Stenian units exposed along the external fold-thrust belt of the Araçuaí orogen will be focused during the trip.

Day 3 – Sept 20th, Tuesday**8:00 AM: departure to Capelinha**

During the second day we will examine outcrops of the Tonian/Cryogenian glaciogenic units of the Macaúbas basin, the Ediacaran Salinas flysch, and structural features related to the collisional stage and orogenic collapse.

6:00 PM Hotel Catuaí, Capelinha (<http://hotelcatuai.com.br>)**Day 4 – Sept 21st, Wednesday****8:00 AM: departure to Ribeirão da Folha and Teófilo Otoni,**

The main focus of this day will be the distal rock assemblage of the precursor basin, including the oceanic floor association (ophiolite slivers), deformed and metamorphosed in the staurolite and kyanite zones.

9:00 PM: Hotel Real, Teófilo Otoni (www.realph.com.br).**Day 5 – Sept 22nd, Thursday****8:00 AM: departure to Colatina,**

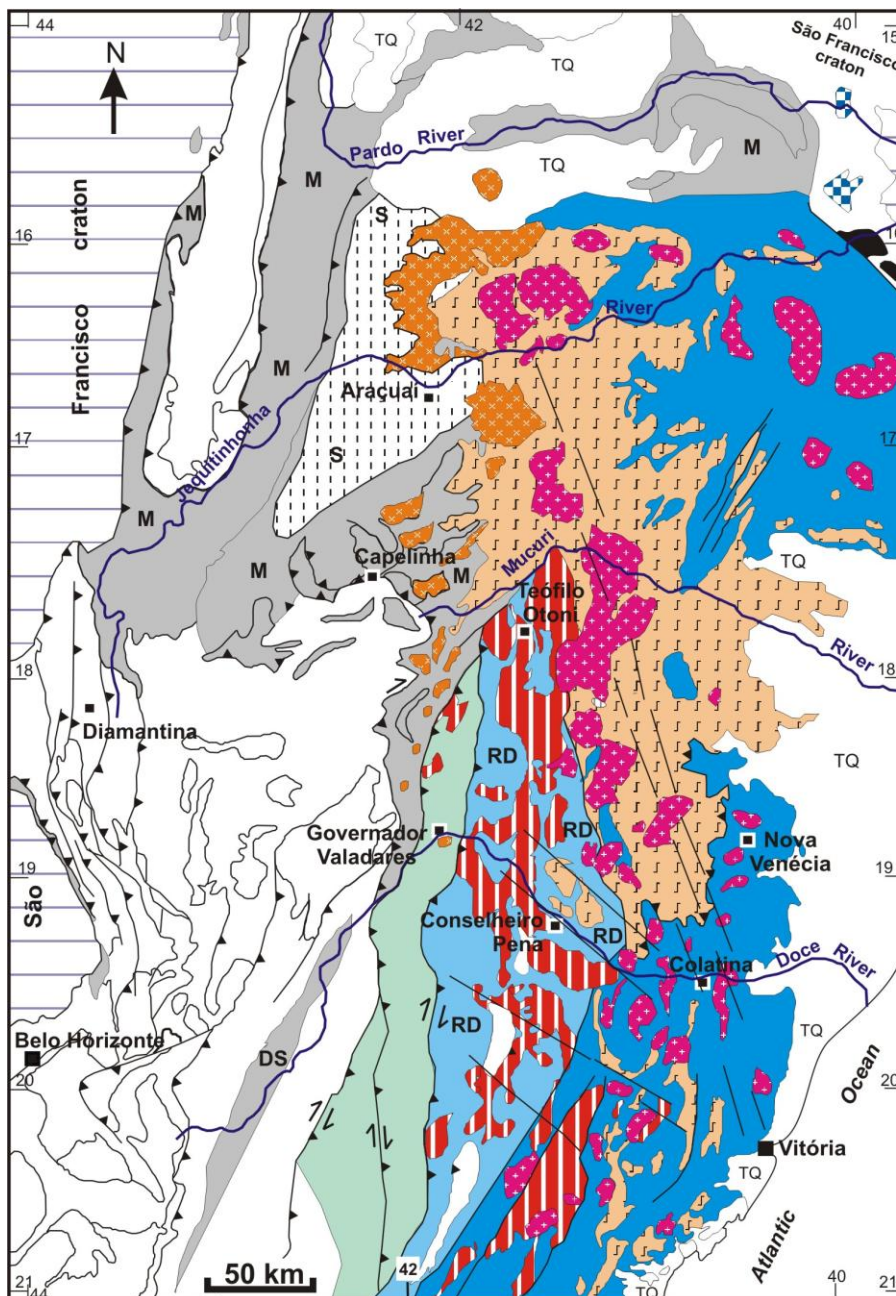
The traverse will cross the suture zone of the orogen, its calc-alkaline magmatic arc and associated basins.

7:00 PM: Hotel São Miguel, Colatina (www.hotelsaomiguel.com.br)**Day 6 – Sept 23rd, Friday****8:00 AM: departure to Nova Venécia,**

Back-arc basin fill units metamorphosed in the amphibolite-granulite facies and the associated partial melting episodes will be examined during this day.

6:00 PM Hotel Cidade, Nova Venécia (www.cidadehotel.com.br)**Day 7 – Sept 24th, Saturday**

8: AM: departure to Vitória (capital of the Espírito Santo State) and arrival at the Vitória airport (Eurico Aguiar Salles airport) around noon. Participants should plan the Vitória - Rio de Janeiro flight for sometime after 2:00 PM (there are several options).



TQ Cenozoic cover

ARAÇUAÍ OROGEN

Cambrian

- I-type G5 supersuite: 520-490 Ma
- S-type G4 supersuite: 535-500 Ma

Neoproterozoic

- S-type G2 (585-560 Ma) and G3 (545-520 Ma) supersuites

Rio Doce Group (RD), Salinas Formation (S) and correlatives

Arc-forearc-basement assemblage (*mélange*)

Magmatic arc: G1 supersuite (630-585 Ma)

Paragneiss complexes (amphibolite-granulite facies)

Macaúbas (M) and Dom Silvério (DS) groups

A-type Salto da Divisa suite (c. 875 Ma)

SÃO FRANCISCO CRATON

Neoproterozoic cover

Alkaline intrusions (730-690 Ma)

PRE-NEOPROTEROZOIC

Basement complexes, intrusions and supracrustals



Syn-collisional (575 Ma), foliated, garnet-biotite granite (G2, Ataléia Suíte, Nova Venécia region).



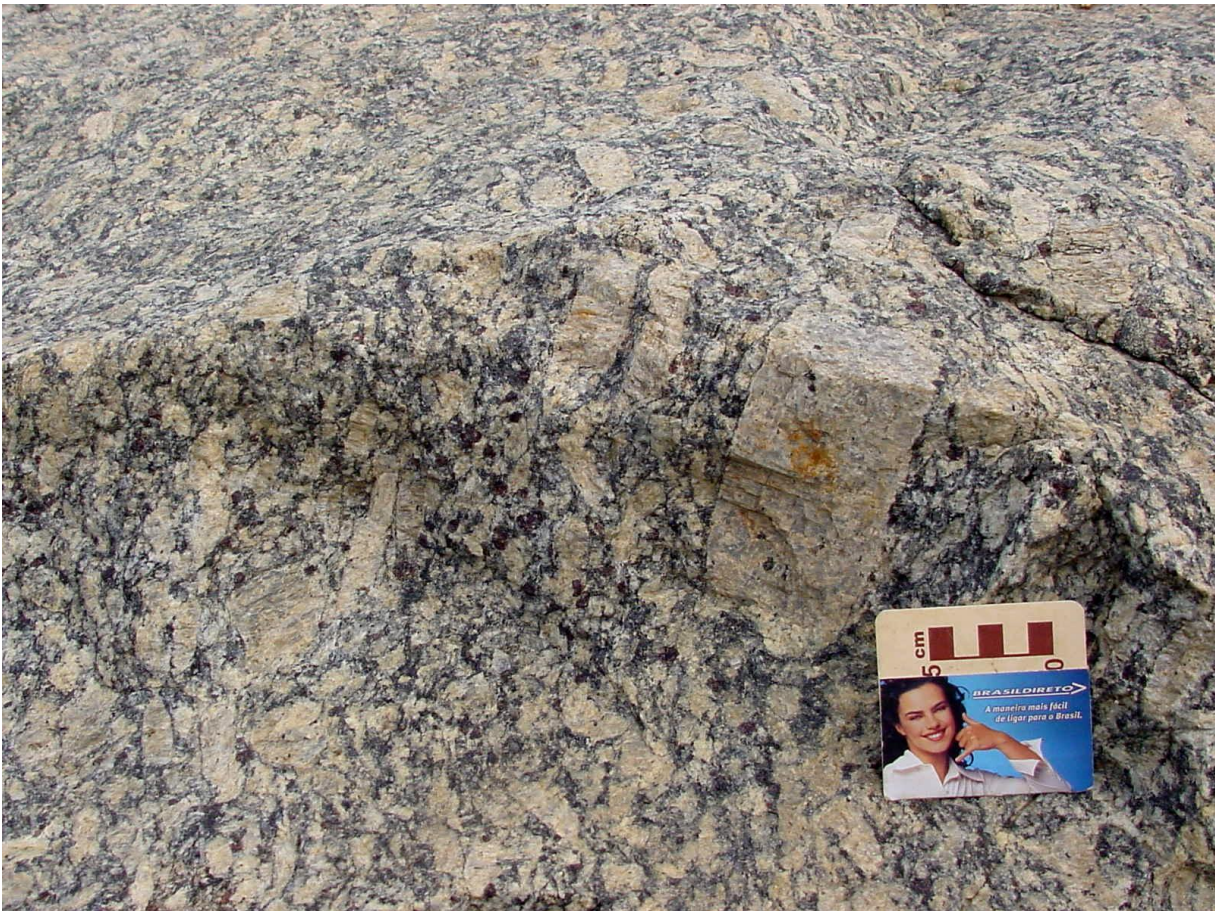
Sugar-loaves of the north Espírito Santo region, modeled on foliated and non-foliated granites.



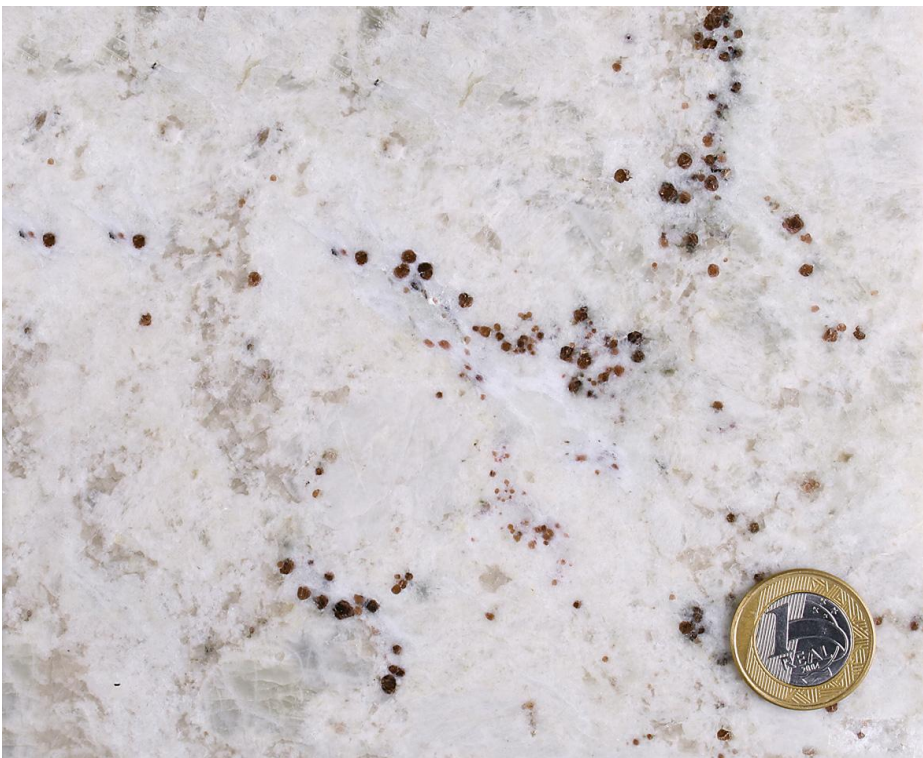
Geologists do adore sugar-loaves!



Syn-collisional granite with very well preserved igneous texture (also 575 Ma).



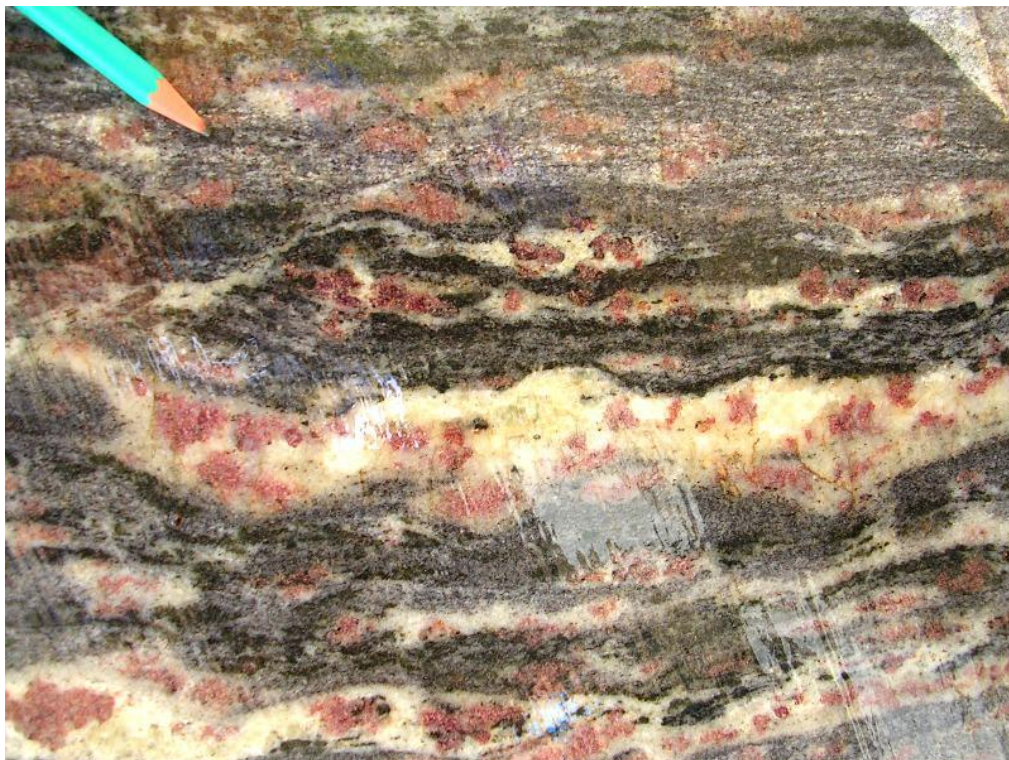
Solid-state foliation superimposed on strong igneous flow in a syn-collisional granite (G2, Montanha Suite, northern Espírito Santo State).



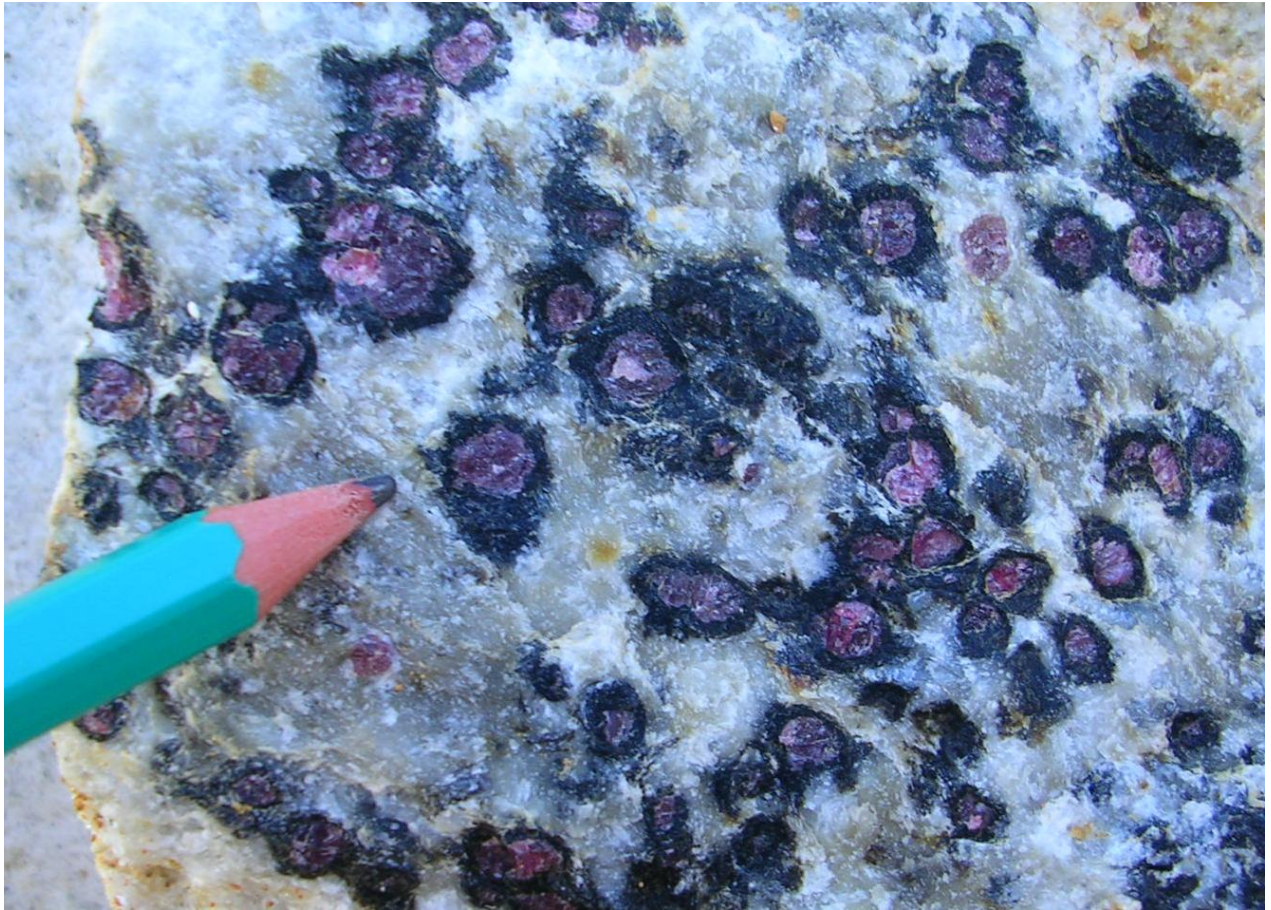
Garnet leucogranite dated at c. 540 Ma (G3 suite, Nova Venécia region).



Blue cordierite granulite, the metamorphic outcome of a pelite deposited in the back-arc basin of the Araçuaí Orogen (Nova Venécia region).



Syn-collisional, garnet-rich leucosomes formed from the partial melting of a kinzigite (Nova Venécia region).



Late cordierite rims overgrowth around probably inherited garnet crystals in a G3 granite.



Landscape of the Espinhaço range, the morphological expression of the Araçuaí fold-thrust belt



Tonian/Cryogenian Macaúbas Group diamictite containing clasts of stromatolites



Shear zone affecting pre-colisional, ~590 arc related tonalite