Elementos básicos de tectônica acrescionária e exemplos da Província Borborema

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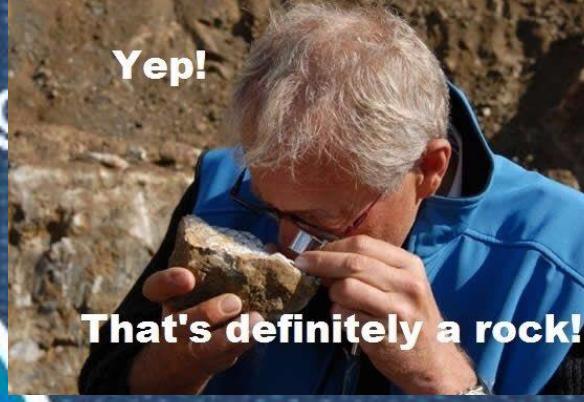

SOCIEDADE BRASILEIRA DE GEOLOGIA

DESDE 1946

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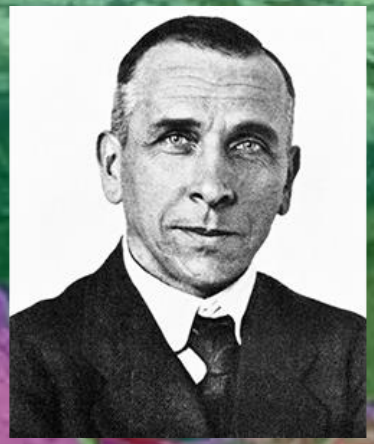
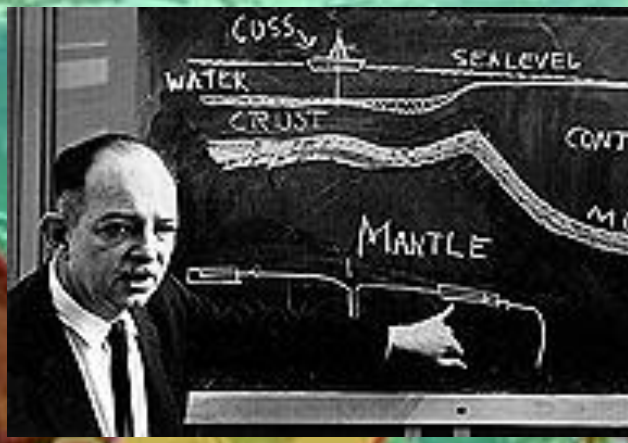
Palestras on-line, ao vivo e com certificado

Passado...



Alfred Lothar Wegener (1880-1930)

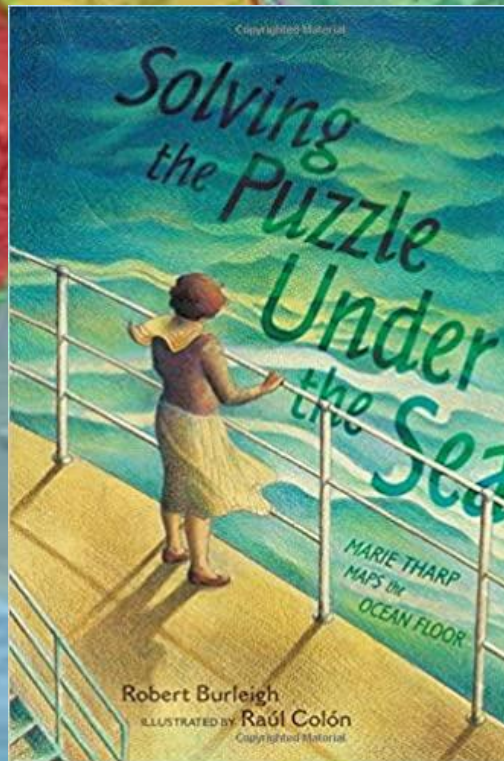
Monotori Matuyama (1906-1969)

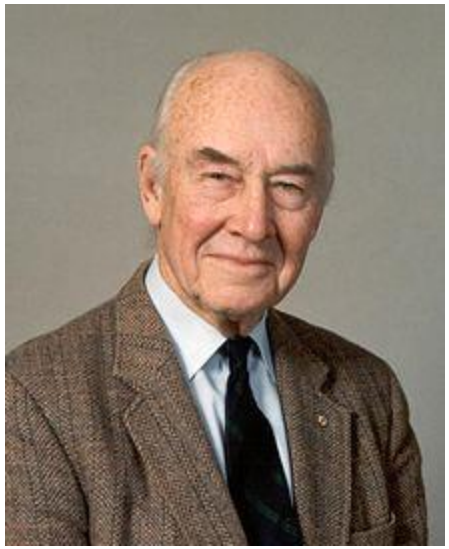


Harry Hess (1884-1958)

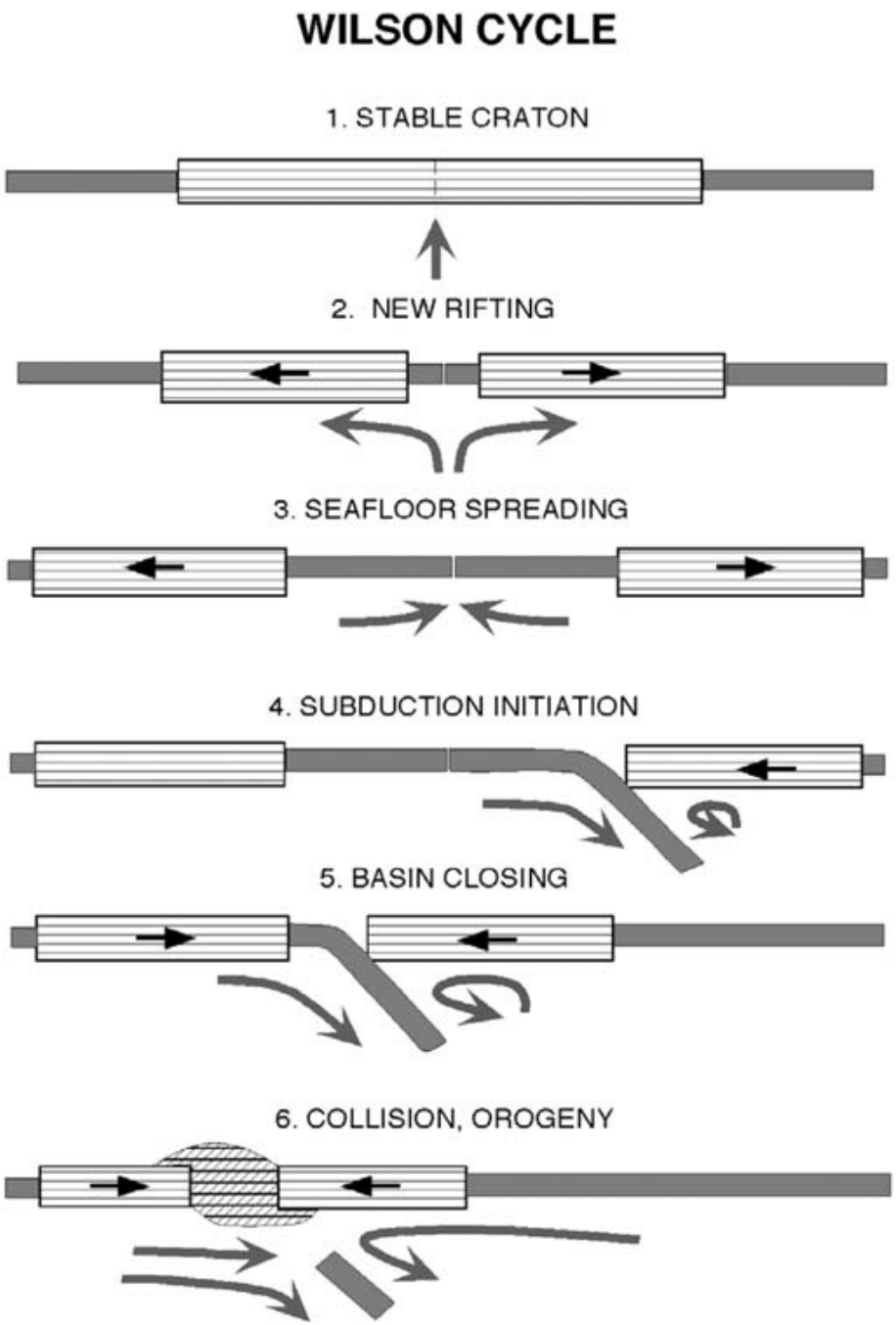
Arthur Holmes (1890-1965)

Marie Tharp (1920-2006) e Bruce Heezen (1924-1977)



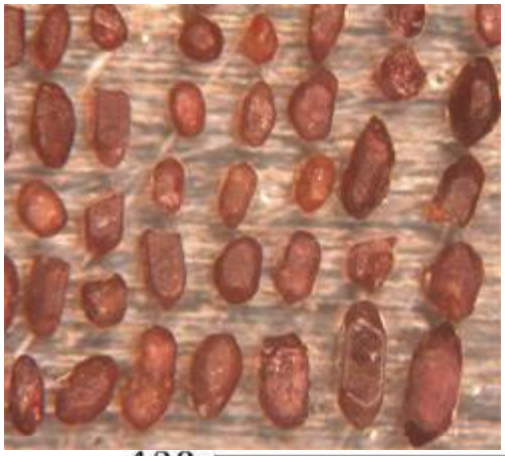


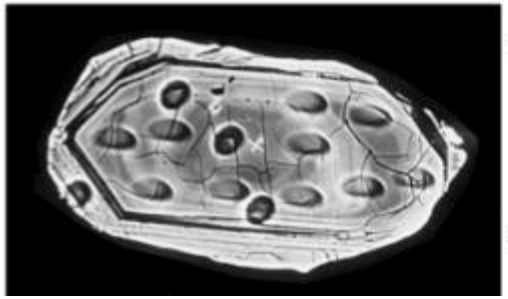
Tuzo Wilson (1908-1993)

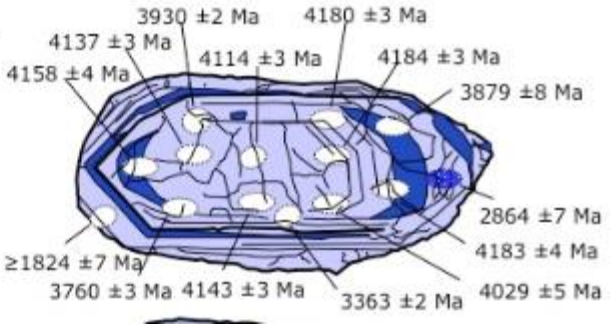


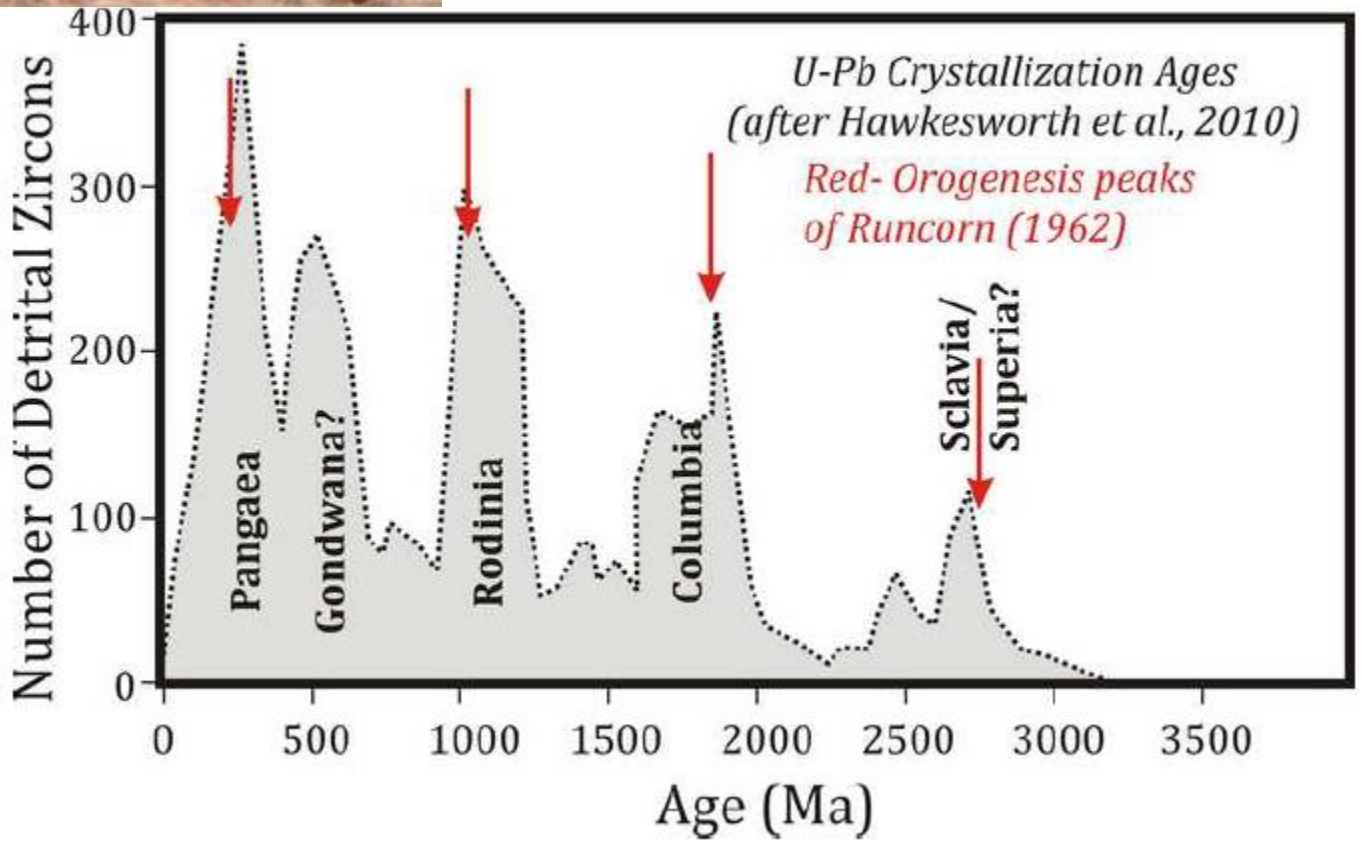
Pangeia
(550-250 Ma)

U.S. Geological Survey: This Dynamic Earth: The Story of Plate Tectonics

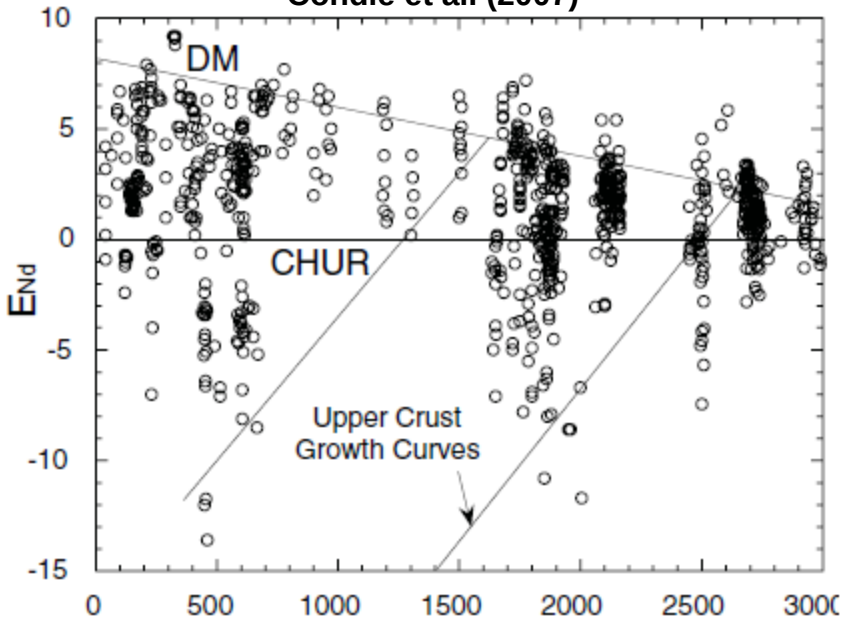




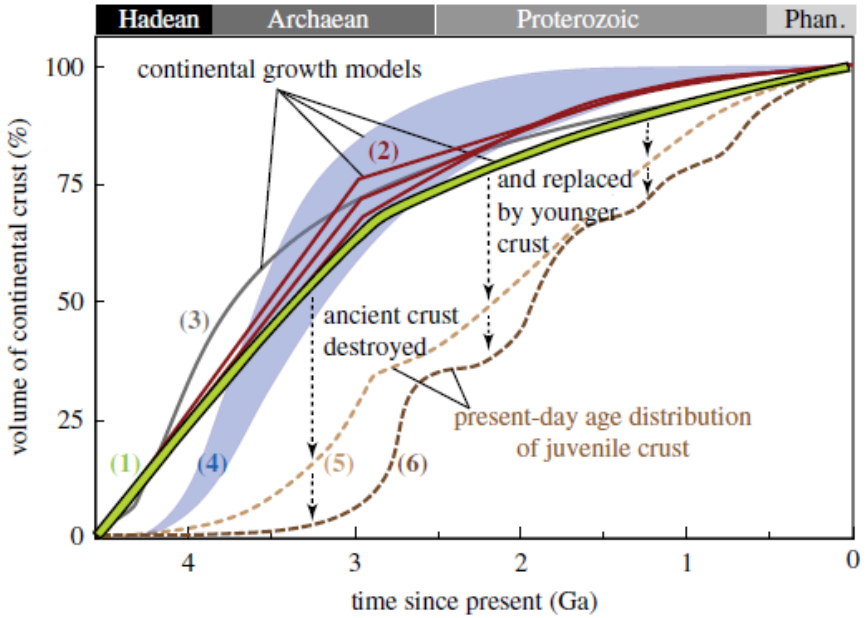

3930 ±2 Ma
4180 ±3 Ma
4137 ±3 Ma
4158 ±4 Ma
4114 ±3 Ma
4184 ±3 Ma
3879 ±8 Ma
2864 ±7 Ma
4183 ±4 Ma
≥1824 ±7 Ma
3760 ±3 Ma
4143 ±3 Ma
3363 ±2 Ma
4029 ±5 Ma

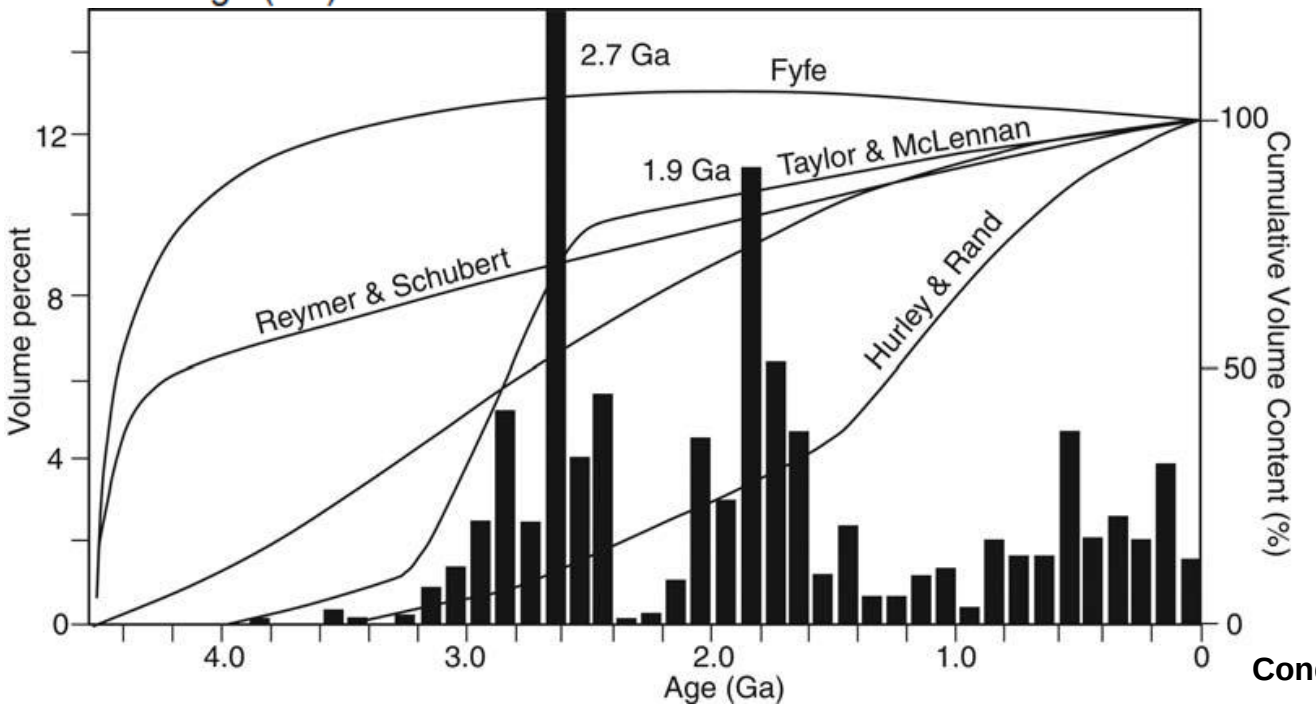

U-Pb Crystallization Ages
(after Hawkesworth et al., 2010)
Red- Orogenesis peaks
of Runcorn (1962)
Number of Detrital Zircons
Age (Ma)
Pangaea
Gondwana?
Rodinia
Columbia
Sclavia/
Superia?
0
100
200
300
400
0
500
1000
1500
2000
2500
3000
3500

Condie et al. (2007)

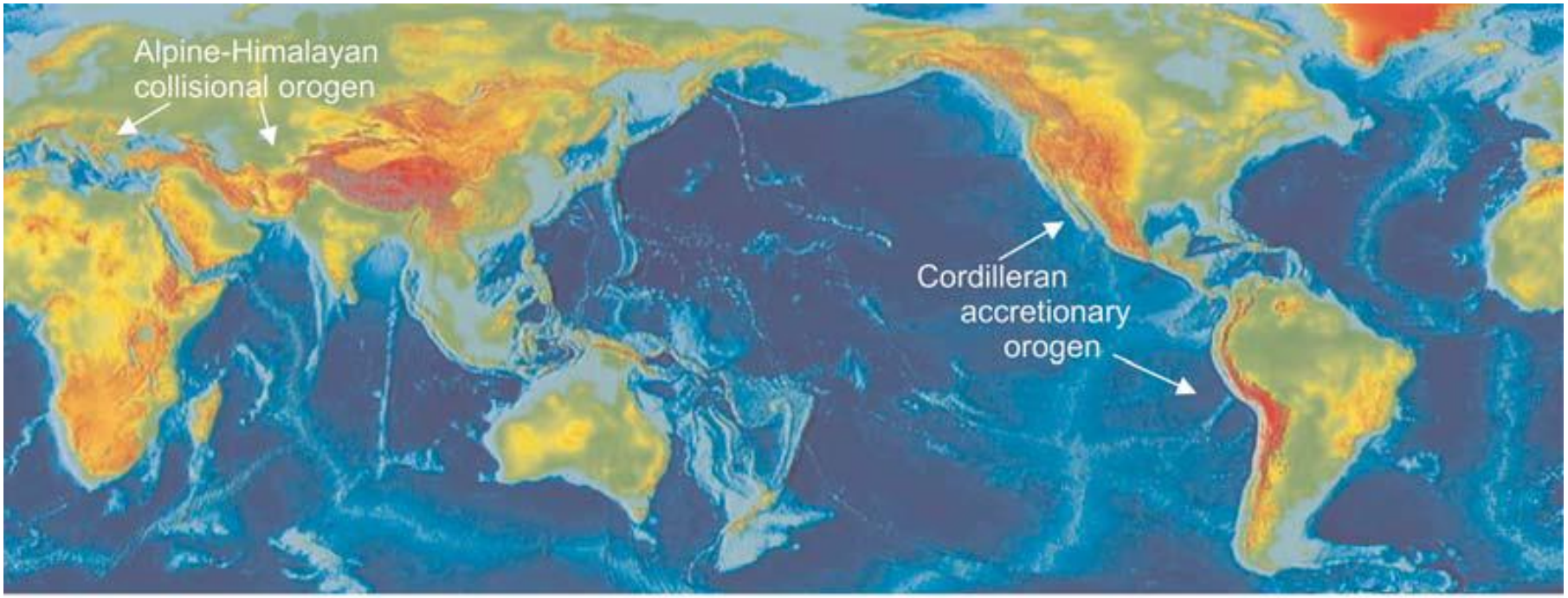


Dhuime et al. (2018)

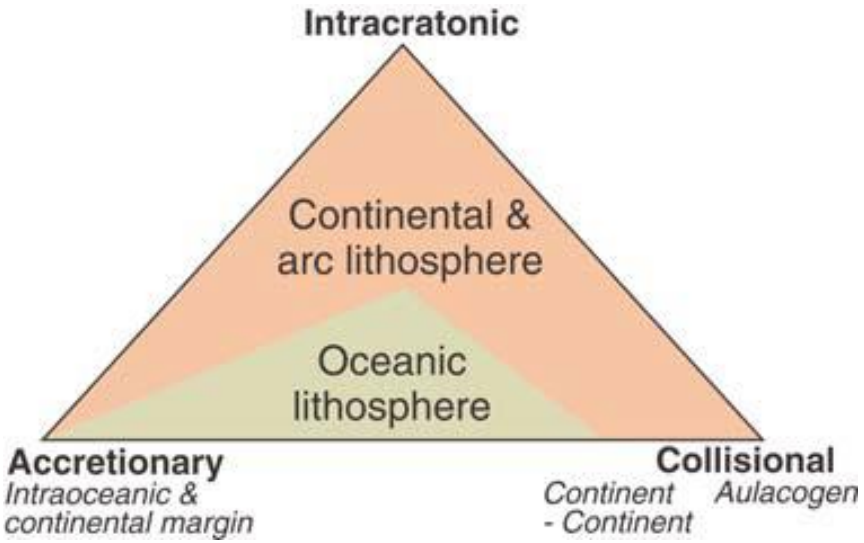




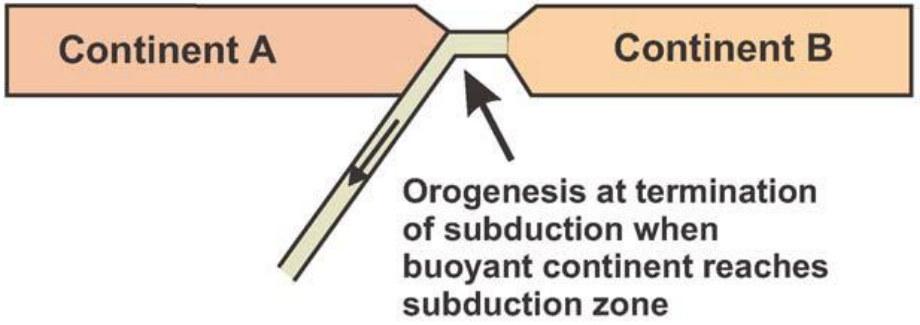
Condie 2005



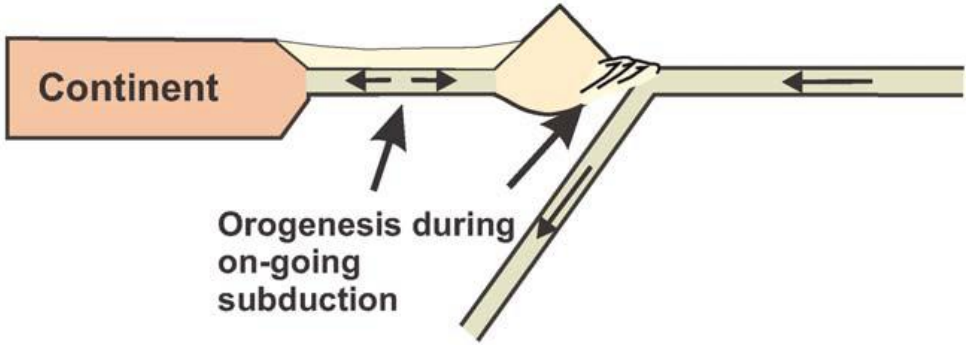
Cawood et al. (2009)



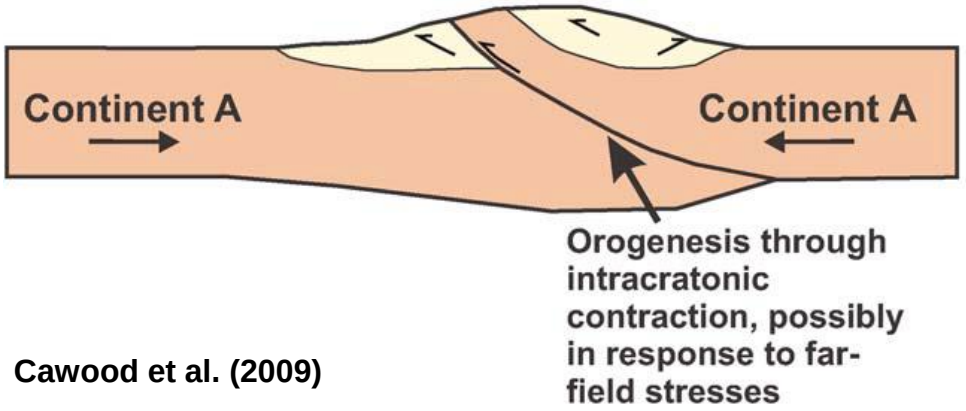
(a) Collisional orogen (termination of Wilson cycle)



(b) Accretionary orogen (on-going subduction)

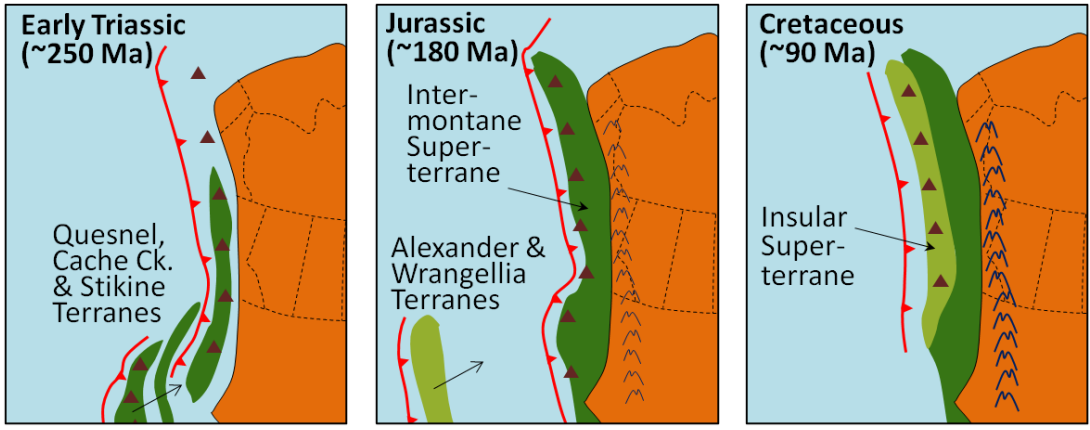


(c) Intracratonic orogen (no A-type subduction)

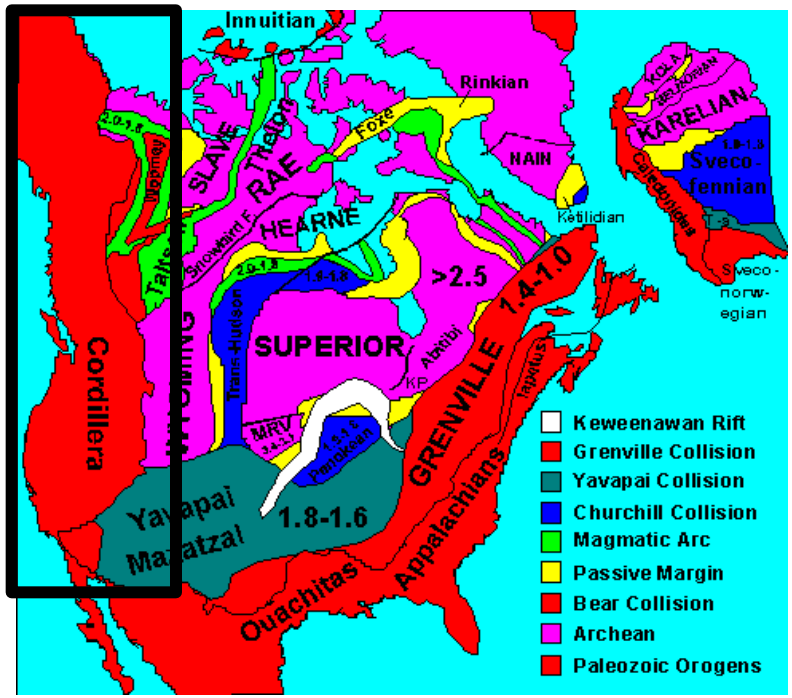


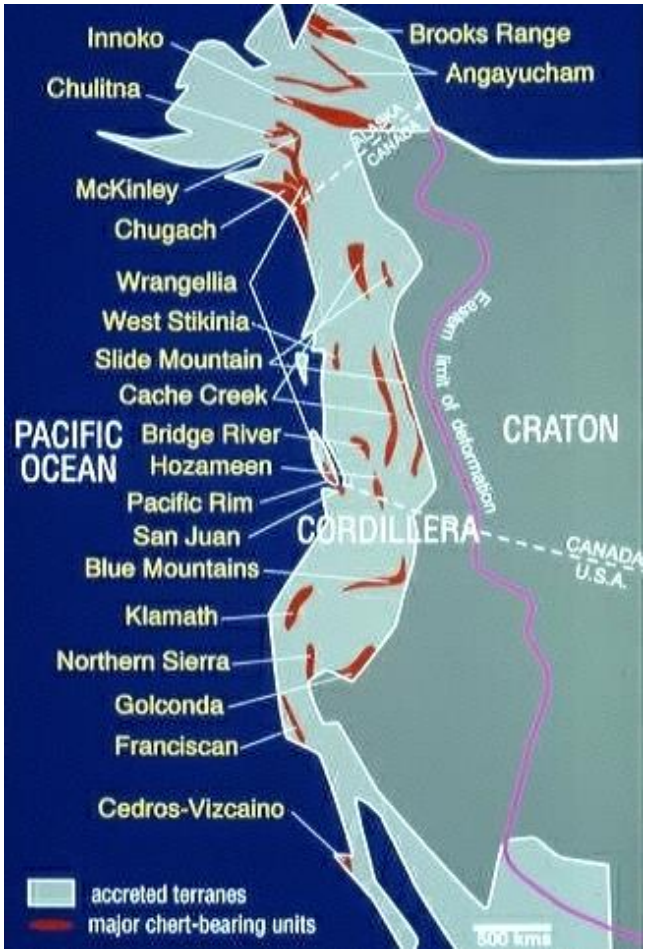
Cawood et al. (2009)

Peter J. Coney (1929-1999)

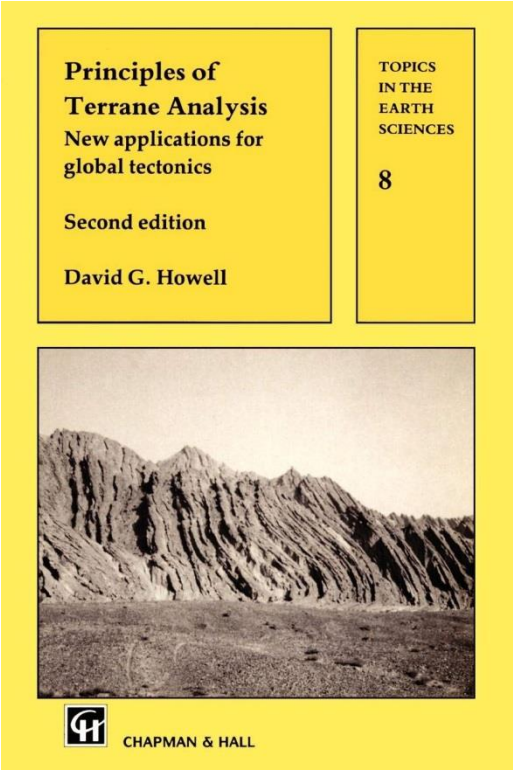


Colpron e Nelson (2009)



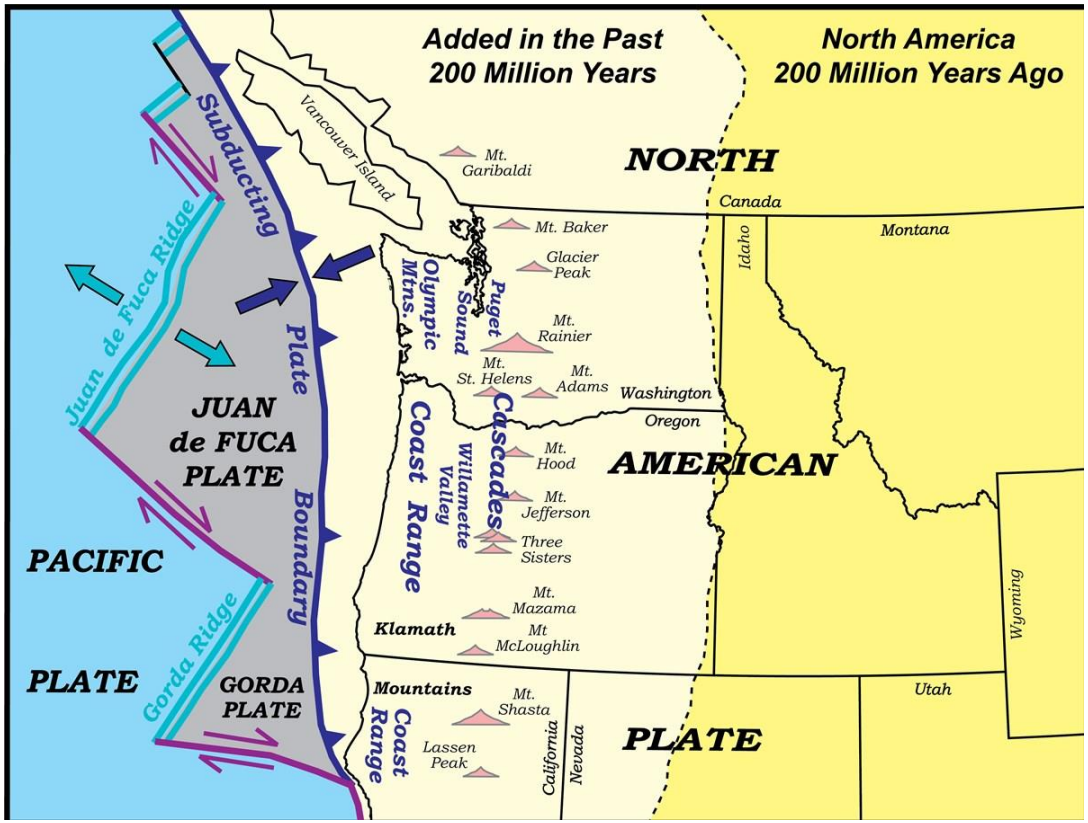


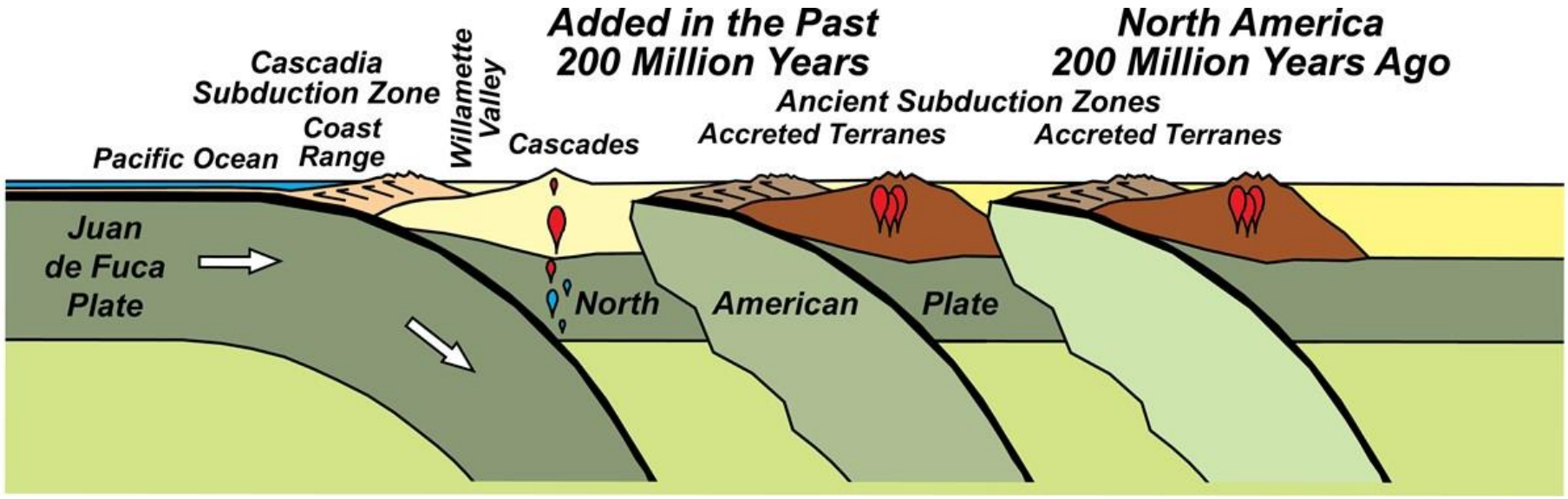
Um <u>terreno tectono-estratigráfico</u> corresponde a um pacote de rochas limitado por falhas ou zonas de cisalhamento importantes (possíveis suturas) com estratigrafia, ambiente e história geológica distintas dos terrenos adjacentes

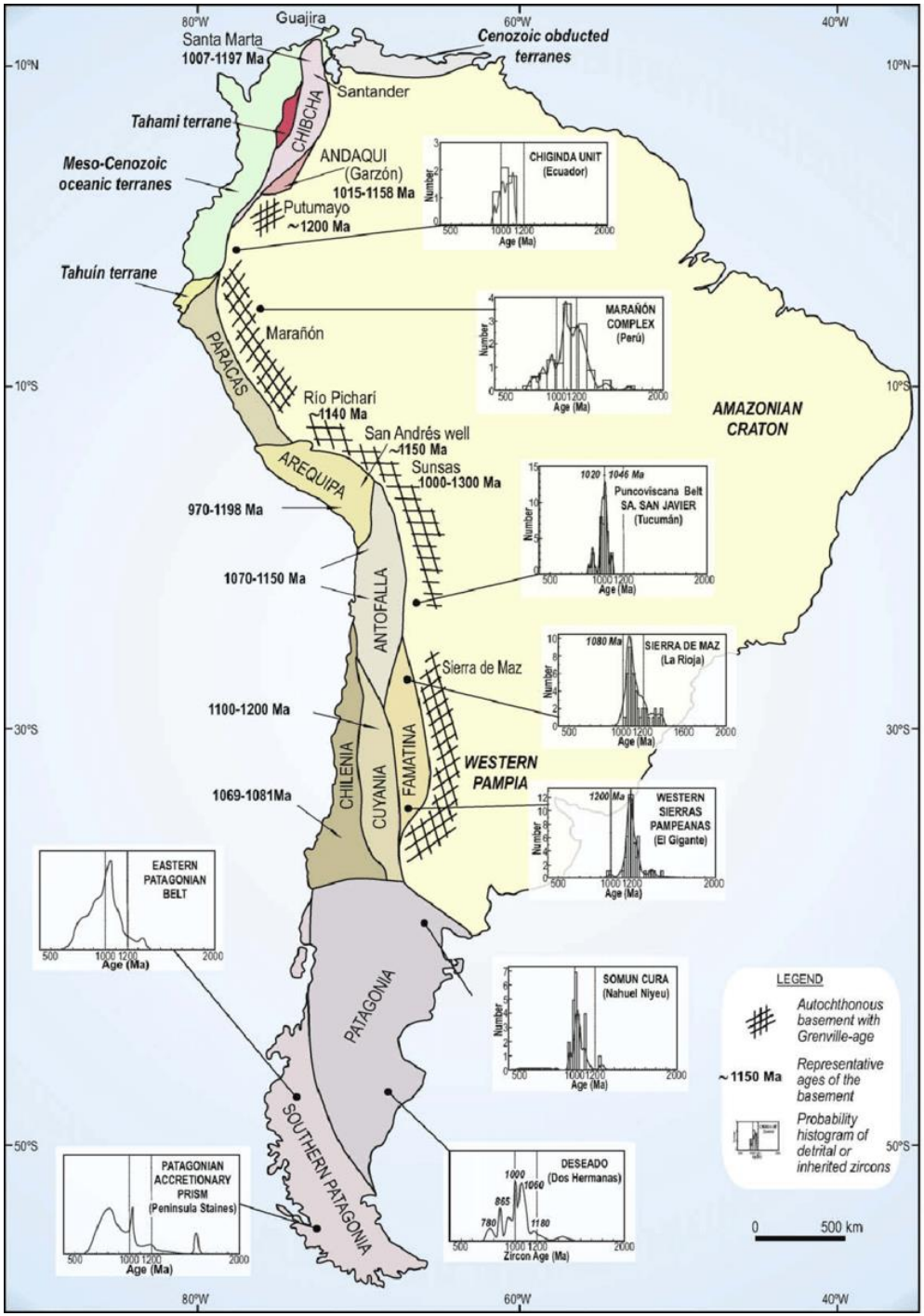


Evidências da presença de terrenos em orógenos

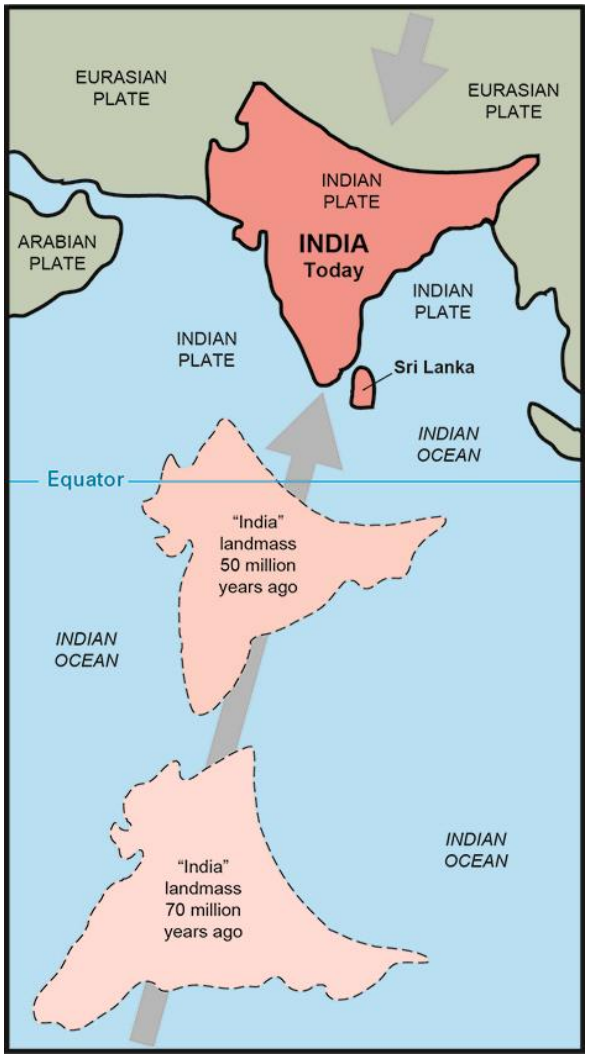
- Zonas de cisalhamento profundas ou que desloquem fragmentos continentais por dispersão;
- Evidências de zonas de sutura: eclogitos (retro), xistos azuis, UHP...;
- Magmatismo cálcio-alcalino juvenil ou com características crustais (arcos magmáticos) nas proximidades da margem;
- Presença de ofiolitos ou rochas de afinidade crustal profunda/mantélica;
- Fósseis de origem incerta ou *far-travelled.*

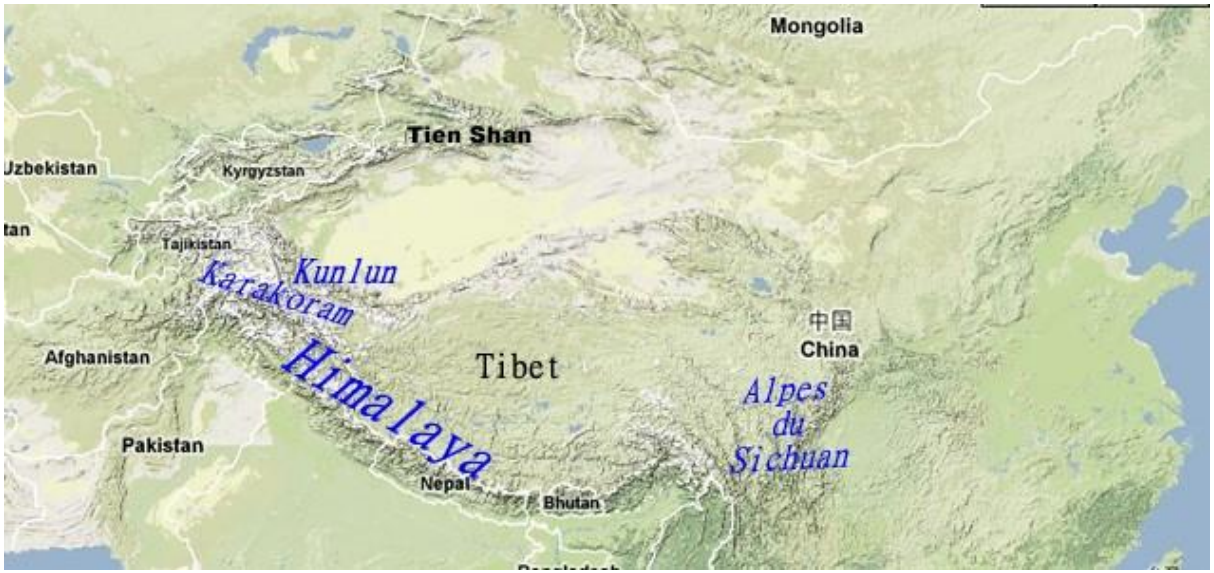

Added in the Past
200 Million Years
North America
200 Million Years Ago
Subducting
Juan de Fuca Ridge
Plate
JUAN
de FUCA
PLATE
Boundary
PACIFIC
PLATE
Gorda Ridge
GORDA
PLATE
Vancouver Island
Mt.
Garibaldi
NORTH
Canada
Mt. Baker
Glacier
Peak
Olympic
Mtns.
Puget
Sound
Mt.
Rainier
Mt.
St. Helens
Mt.
Adams
Washington
Oregon
Coast Range
Willamette
Valley
Cascades
Mt.
Hood
Mt.
Jefferson
Three
Sisters
AMERICAN
PLATE
Idaho
Montana
Wyoming
Utah
Mt.
Mazama
Klamath
Mt
McLoughlin
Mountains
Coast
Range
Mt.
Shasta
Lassen
Peak
California
Nevada

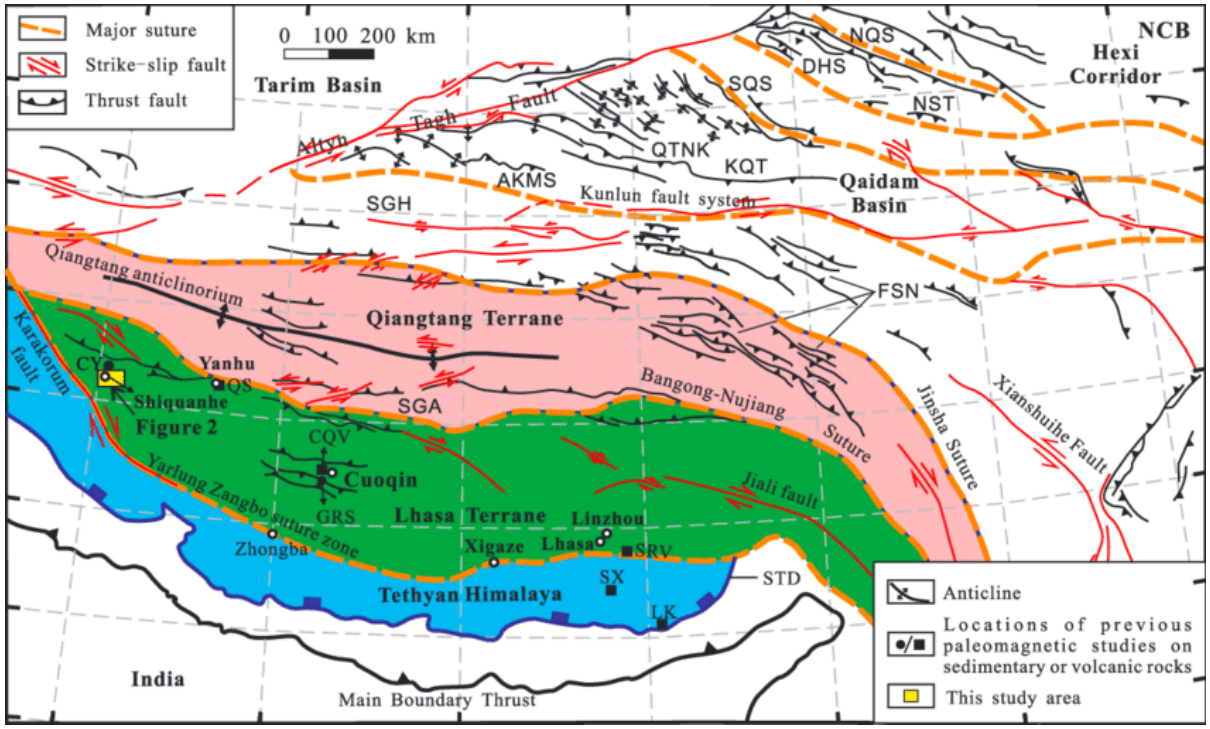

Added in the Past
200 Million Years
North America
200 Million Years Ago
Cascadia
Subduction Zone
Willamette
Valley
Ancient Subduction Zones
Accreted Terranes
Accreted Terranes
Coast
Range
Pacific Ocean
Cascades
Juan
de Fuca
Plate
North
American
Plate


80°W
60°W
40°W
10°N
10°S
30°S
50°S
Guajira
Santa Marta
1007-1197 Ma
Cenozoic obducted terranes
Santander
CHIBCHA
Tahami terrane
Meso-Cenozoic oceanic terranes
ANDAQUI
(Garzón)
1015-1158 Ma
Putumayo
~1200 Ma
CHIGINDA UNIT
(Ecuador)
Tahuín terrane
PARACAS
Marañón
MARAÑÓN COMPLEX
(Perú)
Río Pichari
1140 Ma
San Andrés well
~1150 Ma
Sunsas
1000-1300 Ma
AMAZONIAN CRATON
AREQUIPA
970-1198 Ma
1020 - 1046 Ma
Puncoviscana Belt
SA. SAN JAVIER
(Tucumán)
1070-1150 Ma
ANTOFALLA
Sierra de Maz
1080 Ma
SIERRA DE MAZ
(La Rioja)
1100-1200 Ma
CHILENIA
CUYANIA
FAMATINA
WESTERN PAMPIA
1069-1081Ma
1200 Ma
WESTERN SIERRAS PAMPEANAS
(El Gigante)
EASTERN PATAGONIAN BELT
PATAGONIA
SOMUN CURA
(Nahuel Niyeu)
SOUTHERN PATAGONIA
PATAGONIAN ACCRETIONARY PRISM
(Peninsula Staines)
DESEADO
(Dos Hermanas)
1000
1060
865
780
1180
Zircon Age (Ma)
Age (Ma)
Number
LEGEND
Autochthonous basement with Grenville-age
~1150 Ma
Representative ages of the basement
Probability histogram of detrital or inherited zircons
0
500 km
Powered by Red PANGEA

Ramos (2004)

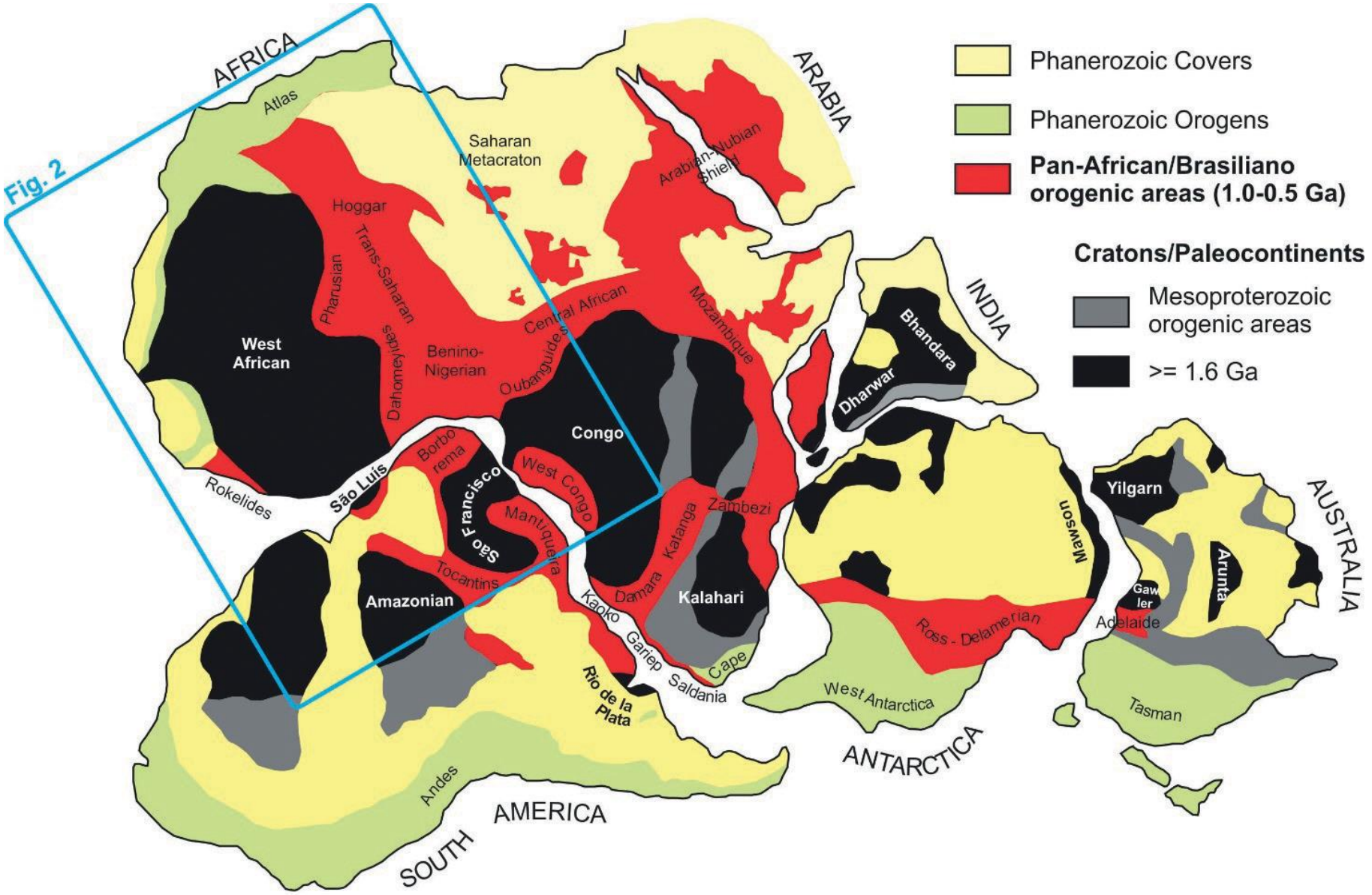

EURASIAN PLATE
EURASIAN PLATE
INDIAN PLATE
INDIA
Today
ARABIAN PLATE
INDIAN PLATE
INDIAN PLATE
Sri Lanka
INDIAN OCEAN
Equator
"India" landmass 50 million years ago
INDIAN OCEAN
"India" landmass 70 million years ago
INDIAN OCEAN


Mongolia
Tien Shan
Uzbekistan
Kyrgyzstan
Tajikistan
Kunlun
Karakoram
Himalaya
Afghanistan
Tibet
中国
China
Alpes du Sichuan
Pakistan
Nepal
Bhutan

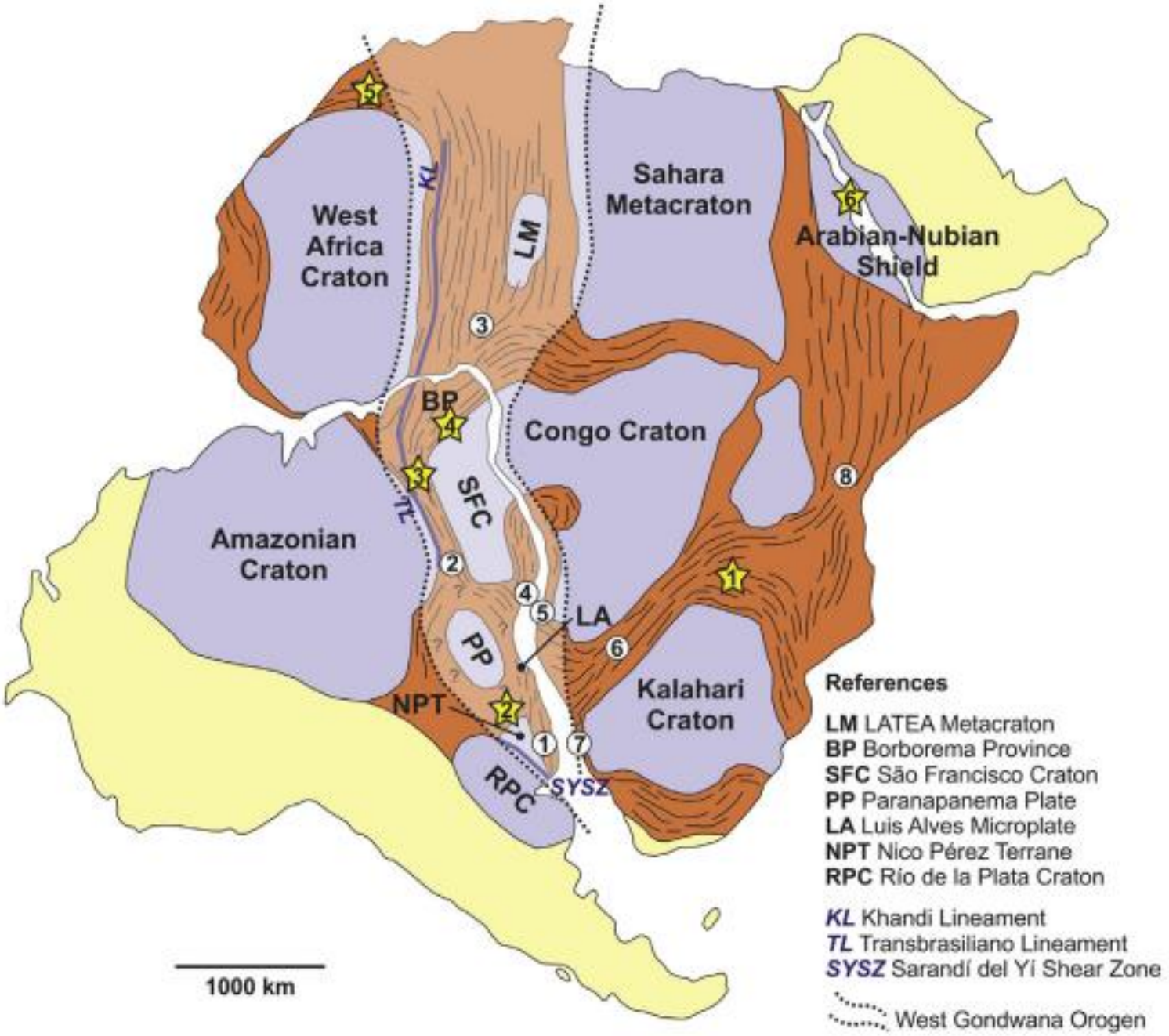

Major suture
Strike-slip fault
Thrust fault
0 100 200 km
Tarim Basin
NCB
Hexi Corridor
NQS
DHS
SQS
NST
Altyn Tagh Fault
QTNK
KQT
AKMS
Kunlun fault system
Qaidam Basin
SGH
Qiangtang anticlinorium
Qiangtang Terrane
FSN
Karakorum fault
CY
Yanhu
QS
Shiquanhe
Figure 2
SGA
Bangong-Nujiang Suture
Jinsha Suture
Xianshuihe Fault
CQV
Cuoqin
Jiali fault
Yarlung Zangbo suture zone
GRS
Lhasa Terrane
Linzhou
Zhongba
Xigaze
Lhasa
SRV
SX
STD
Tethyan Himalaya
LK
India
Main Boundary Thrust
Anticline
Locations of previous paleomagnetic studies on sedimentary or volcanic rocks
This study area

Ma et al. (2018)

Gondwana



Caxito et al., (2020)



Oriolo et al. (2017)

AGU100 ADVANCING EARTH AND SPACE SCIENCE

Tectonics

RESEARCH ARTICLE
10.1029/2018TC005130

Accretion Tectonics in Western Gondwana Deduced From Sm-Nd Isotope Mapping of Terranes in the Borborema Province, NE Brazil

Key Points:

- Sm-Nd isotope mapping applied to accretion tectonics in Borborema Province
- Nd data from 106 analyses refine the boundary between crustal blocks involved in the assembly of Western Gondwana
- Contrasting isotopic sources stands for distinct crustal segments instead of a single continental block

L. C. M. de L. Santos[1,2], E. L. Dantas[1], P. A. Cawood[3], G. de A. Lages[4], H. M. Lima[5], and E. J. dos Santos[4,6]

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A complete Wilson Cycle recorded within the Riacho do Pontal Orogen, NE Brazil: Implications for the Neoproterozoic evolution of the Borborema Province at the heart of West Gondwana

Fabrício A. Caxito[a,*], Alexandre Uhlein[a], Elton Luiz Dantas[b], Ross Stevenson[c], Silas Santos Salgado[a], Ivo A. Dussin[a], Alcides da Nóbrega Sial[d]

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[b]Instituto de Geociências, Universidade de Brasília, Campus Universitário, Asa Norte, CEP 70910-900, Brasília, DF, Brazil
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[d]NEG-LABISE, Department of Geology, Universidade Federal de Pernambuco, Recife, PE 50740-530, Brazil

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Constraints from zircon geochronology on the tectonic evolution of the Borborema Province (NE Brazil): Widespread intracontinental Neoproterozoic reworking of a Paleoproterozoic accretionary orogen

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AGU100 ADVANCING EARTH AND SPACE SCIENCE

Terra Nova

doi: 10.1111/ter.12084

Extruding the Borborema Province (NE-Brazil): a two-stage Neoproterozoic collision process

Carlos E. Ganade de Araujo,[1,2] Roberto F. Weinberg[3] and Umberto G. Cordani[2]

[1]*Geological Survey of Brazil – SGB/CPRM, Fortaleza CE 60135-101, Brazil;* [2]*Universidade de São Paulo, São Paulo SP 05508-900, Brazil;* [3]*Monash University, Clayton Campus, Wellington Road, Clayton, Vic. 3800, Australia*

Precambrian Research 276 (2016) 24–42

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Precambrian Research

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Tightening-up NE Brazil and NW Africa connections: New U–Pb/Lu–Hf zircon data of a complete plate tectonic cycle in the Dahomey belt of the West Gondwana Orogen in Togo and Benin

Carlos E. Ganade[a,b,*], Umberto G. Cordani[b], Yao Agbossoumounde[c], Renaud Caby[d], Miguel A.S. Basei[b], Roberto F. Weinberg[e], Kei Sato[b]

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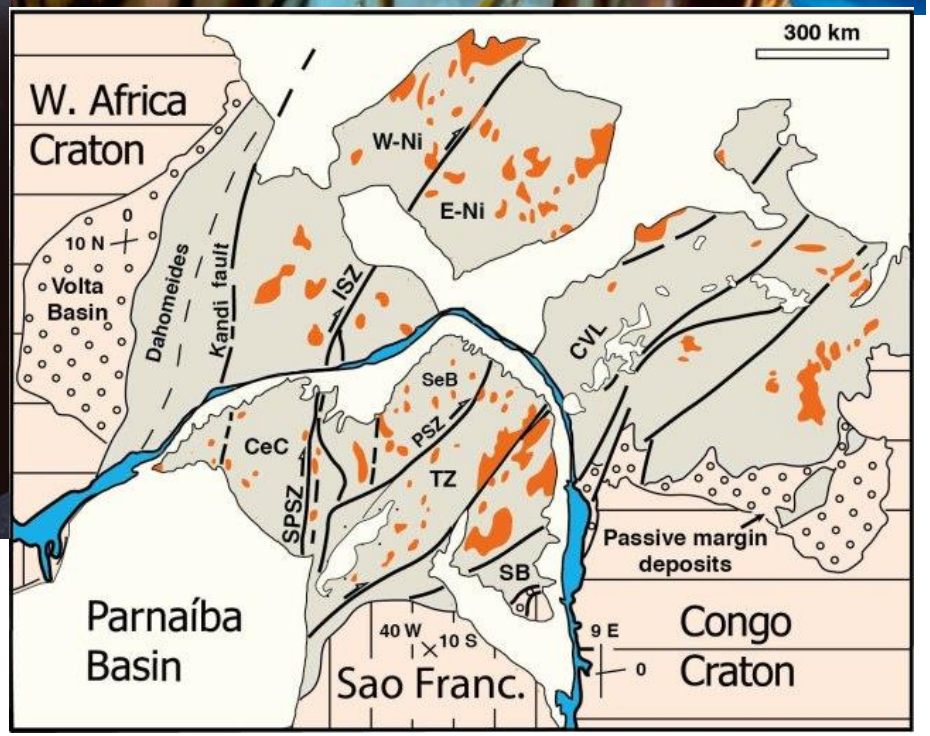
[b] *Instituto de Geociências, Universidade de São Paulo, Rua do Lago, 562, CEP 05508-080 São Paulo, Brazil*
[c] *Department of Earth Sciences, University of Lome, P.O. Box 1515, Lome, Togo*
[d] *Geosciences Montpellier, Université de Montpellier II, Place E. Batatillon 34095, Montpellier Cedex 5, France*
[e] *Monash University, School of Earth, Atmosphere and Environment, 28, Clayton, Melbourne, VIC, Australia*

The evolution

David R. Montgomery, *Quaternary Re*
Earth and Space Sciences, Box 3513

rejected this perspective and chose to see geology as a threat to their faith. In so doing, they abandoned faith in reason and cast off a long-standing theological tradition that rocks don't lie.



Archanjo et al., (2002)

The evolution of creationism

David R. Montgomery, *Quaternary Research Center and Dept. of Earth and Space Sciences, Box 351310, University of Washington, Seattle, Washington 98195-1310, USA, dave@ess.washington.edu*

I do not feel obliged to believe that the same God who has endowed us with senses, reason, and intellect has intended us to forego their use. —Galileo Galilei

ABSTRACT

For centuries, natural philosophers, their scientific successors, and theologians alike sought to explain the physical and natural world. The now common cultural narrative of perpetual conflict between science and religion simplifies the arguments and struggles of the past and overlooks cross-pollination between those who embraced faith and reason as the keys to understanding earth history. When geologists unequivocally dismissed the idea of a global flood and recognized Earth's antiquity, many conservative theologians acknowledged that there was more to the past than literally spelled out in Genesis, the opening chapter of the Bible. But some Christians—those we now call creationists—rejected this perspective and chose to see geology as a threat to their faith. In so doing, they abandoned faith in reason and cast off a long-standing theological tradition that rocks don't lie.

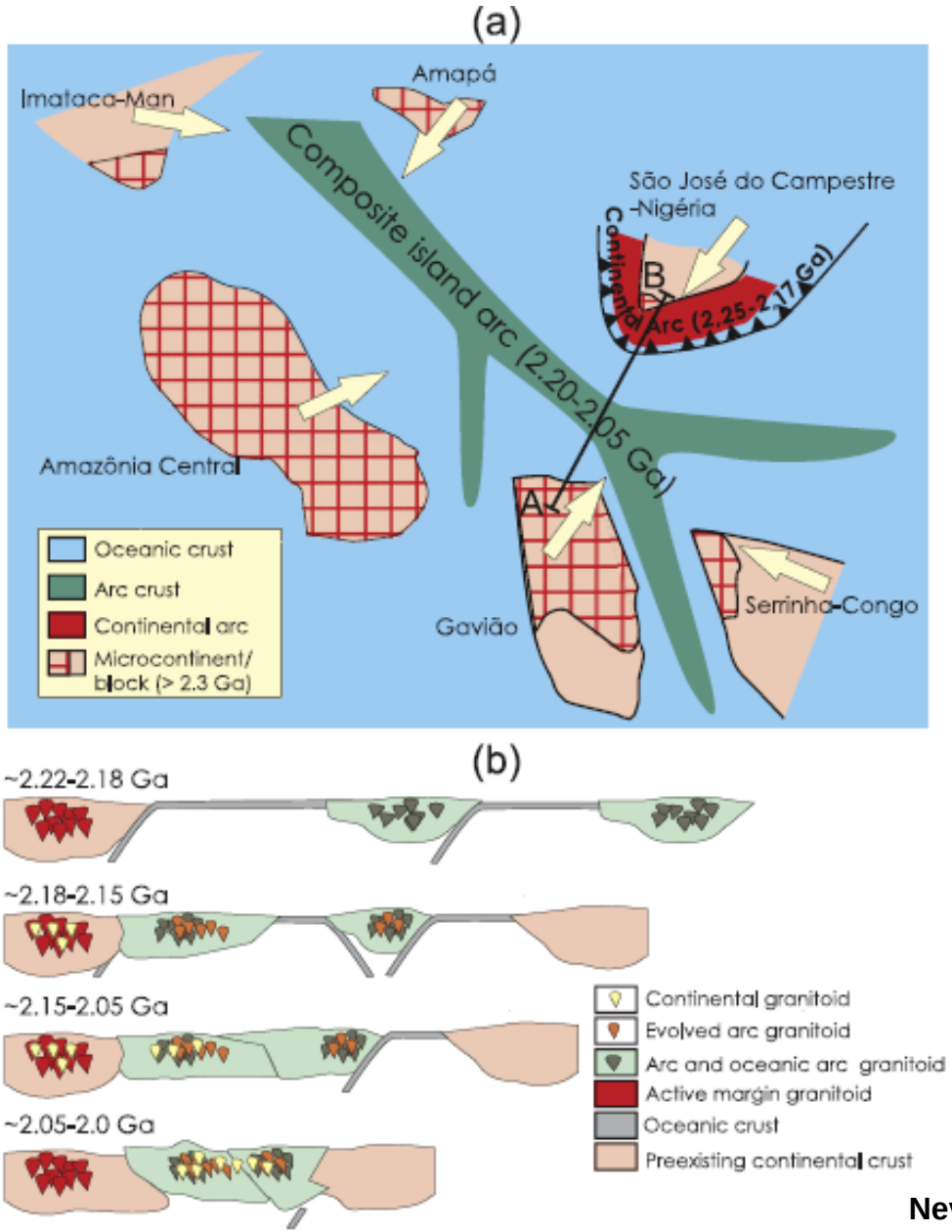
(354–413), Thomas Aquinas (1225–1274), and John Calvin (1509–1564) all endorsed reason as the way to learn about the world. Augustine was among the first to caution against advocating for biblical interpretations that conflicted with what one could observe for oneself. Centuries later, Aquinas praised the pursuit of knowledge and insight gained from experience reading God's other book—nature.

Writing at the time of the Reformation, Calvin, too, considered the revelations of both nature and the Bible as fundamental truths. In his *Institutes of the Christian Religion* (1559), Calvin explicitly embraced the idea of respecting natural truths revealed through the study of nature: "If we regard the Spirit of God as the sole fountain of truth, we shall neither reject the truth itself, nor despise it wherever it shall appear, unless we wish to dishonor the Spirit of God" (McNeill, ed., 1960, p. 273–274).

Calvin believed in keeping an open mind when it came to evaluating what we can learn about the natural world from observation and experience. In his view, closing one's eyes to the way the world works was to close one's eyes to God.

Augustine, Aquinas, and Calvin all believed that Noah's Flood was a global flood. They interpreted fossil seashells found in rocks as compelling proof—how else could the bones of marine creatures have ended up entombed in rocks high in the mountains?

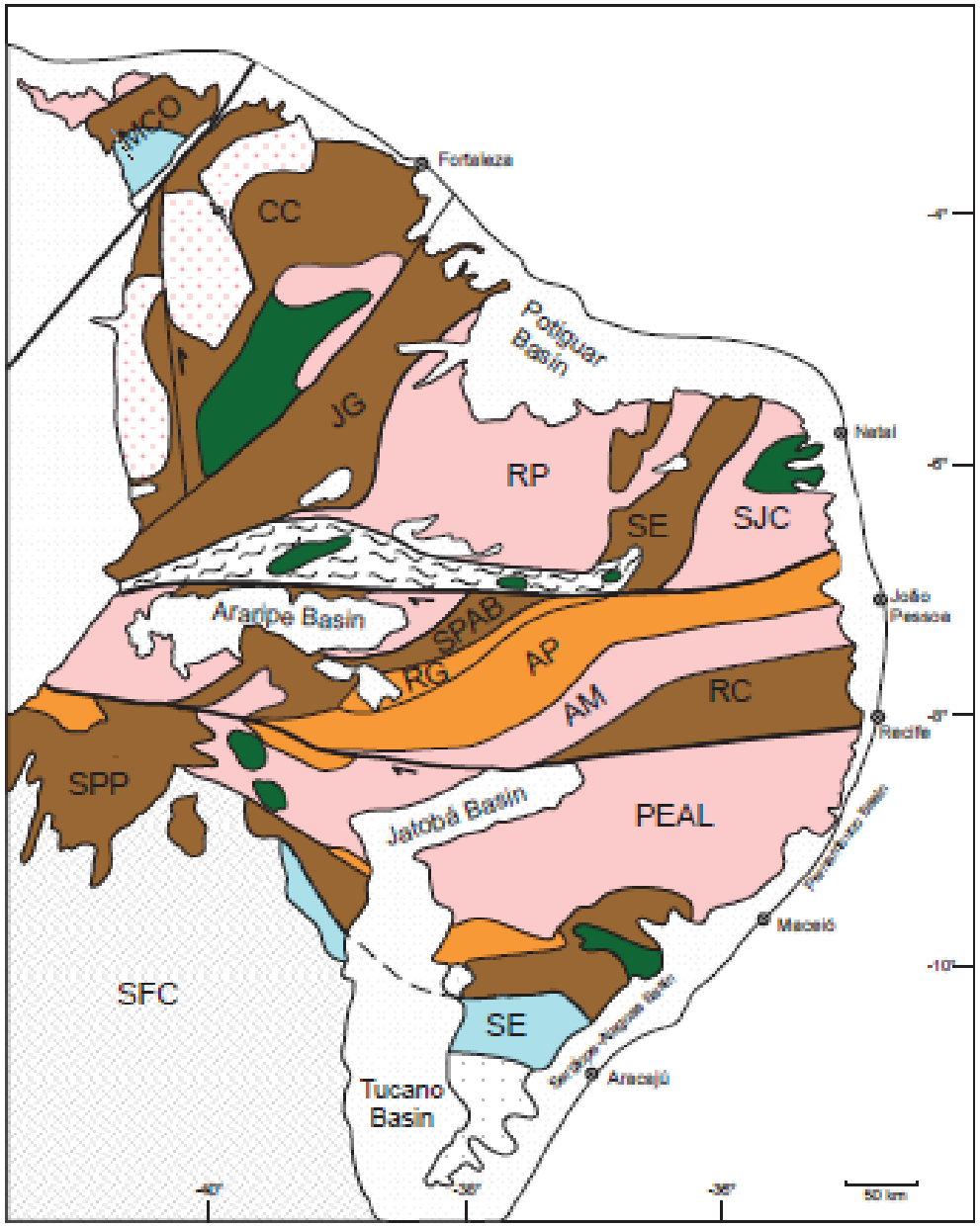
Para o paleoproterozoico...



Neves (2014)

Com relação ao Neoproterozoico?

- Domínios, sequencias, complexos, suítes – dualidade de ambiência;
- Evidências de domínios gerados/submetidos a condições de algo grau seriam suficientes para justificar acreção?;
- Ausência de cristais metamórficos de zircão ou monazita nas sequencias neoproterozoicas;
- Ausência de sequências ofiolíticas bem preservadas;
- Zonas de cisalhamento seriam/são/foram zonas de sutura...



Phanerozoic

Cambrian Foreland and Molassic Deposits

Patos -Aurora Shear zone
Tectonites of different previous ages

Neoproterozoic Fold Belts:

Pelitic-Carbonatic (QPC)

Volcano - Sedimentary

Reworked Paleoproterozoic inliers

Magmatic arc

TonianTerranes and Belts

LocalArchean Nuclei

São Francisco Craton

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AM- Moxotó Terrane
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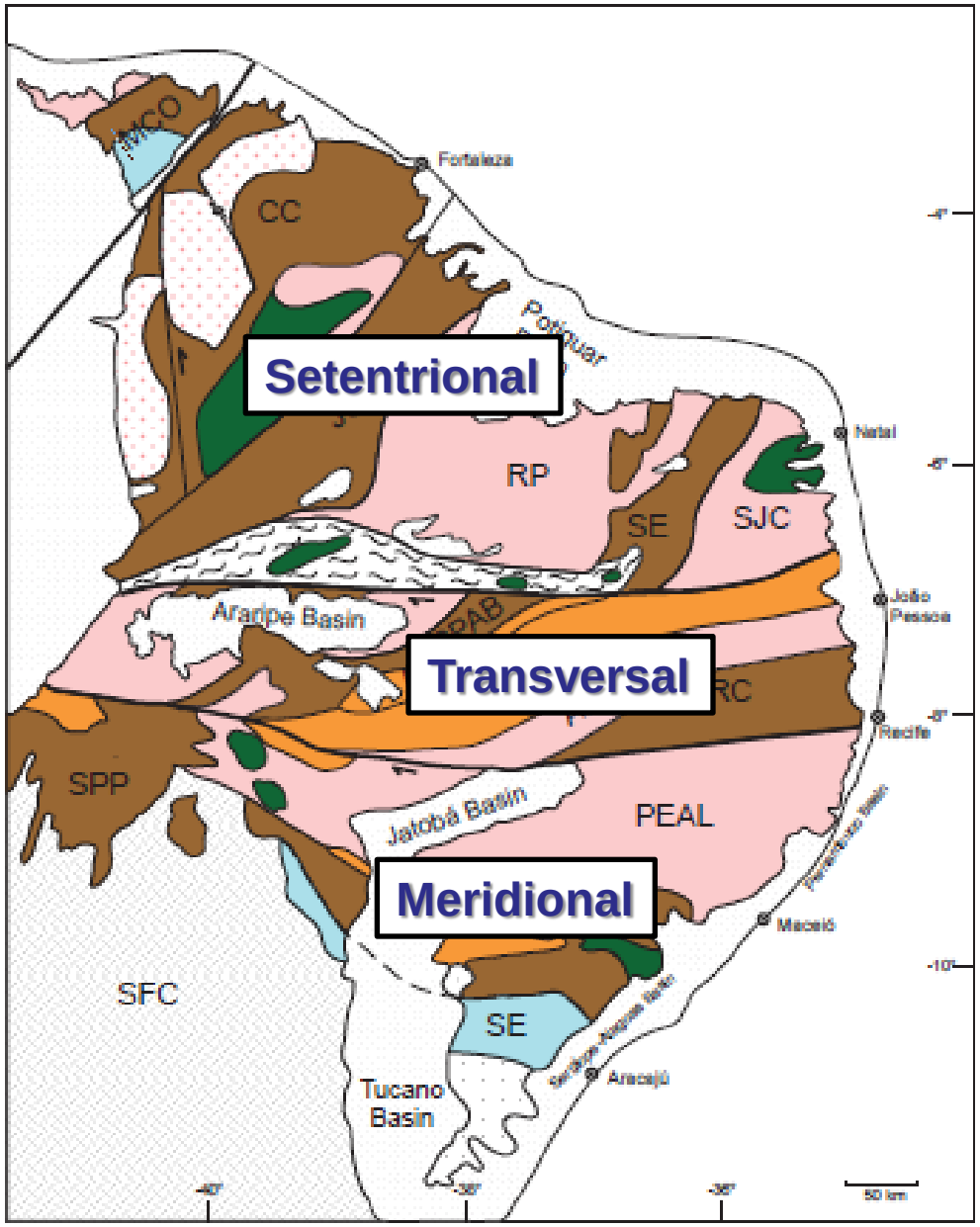
SPAB-Piancó-Alto Brígida Belt

Brito Neves et al. (2014)



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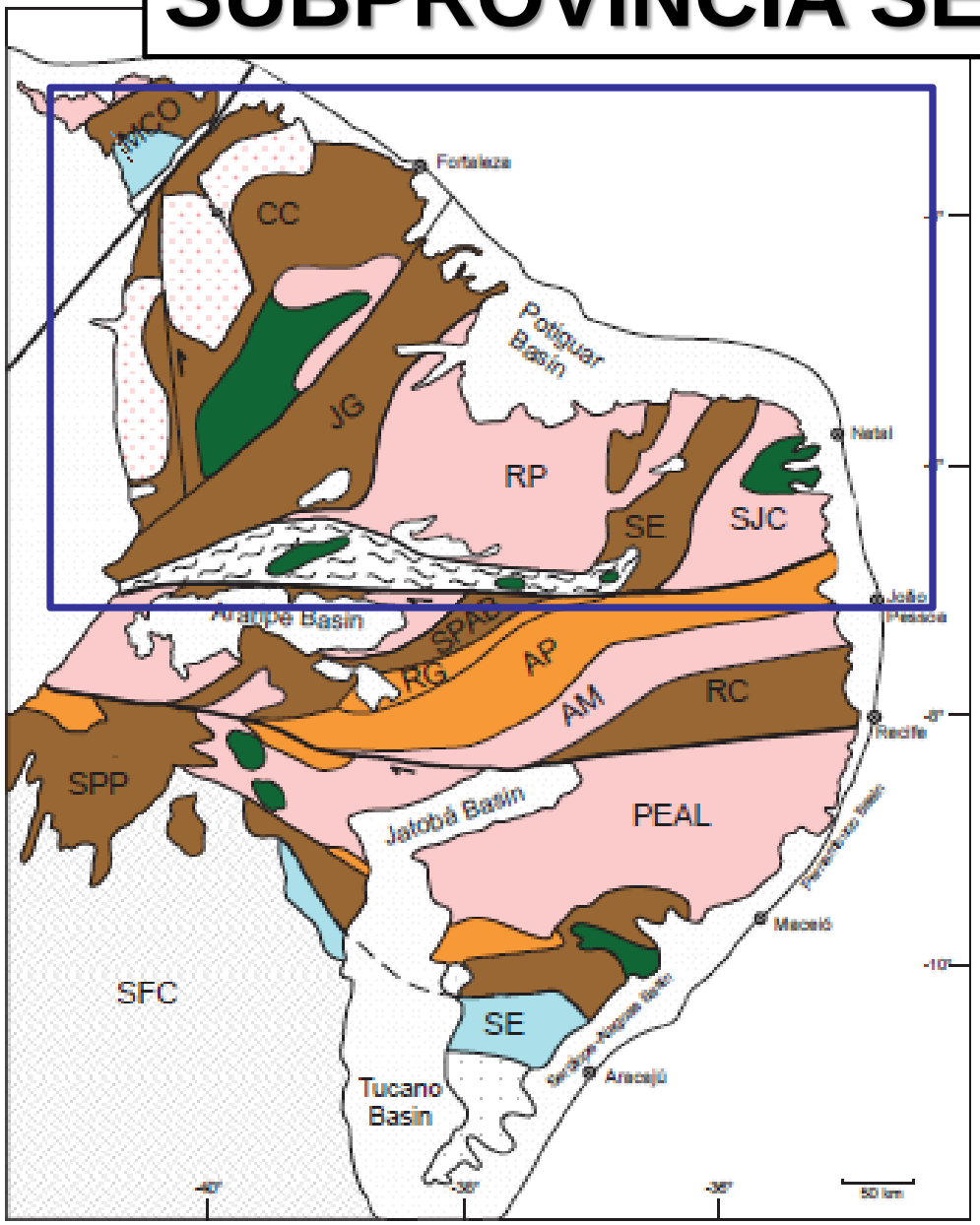
Brito Neves et al. (2014)

SUBPROVÍNCIA SETENTRIONAL



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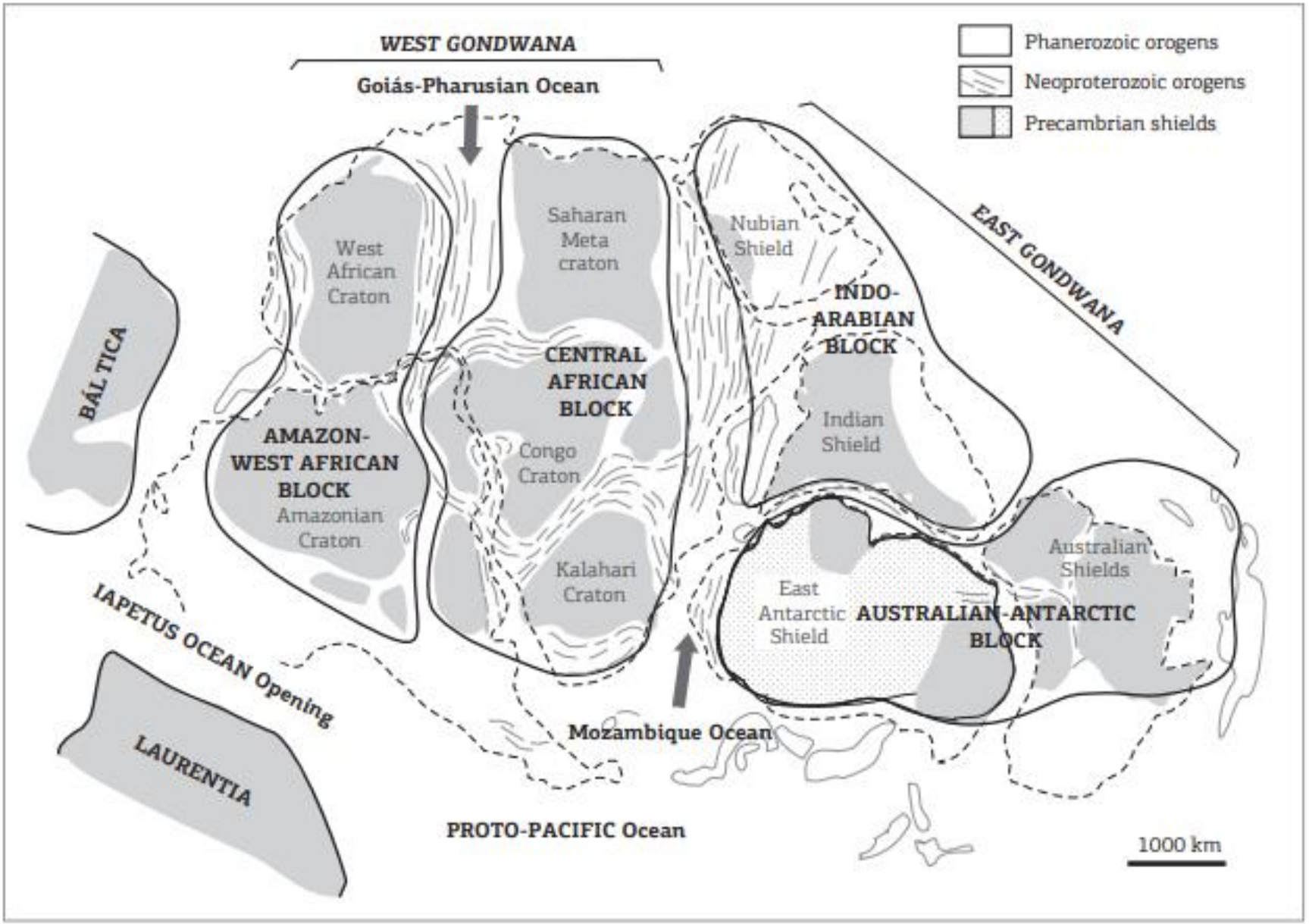
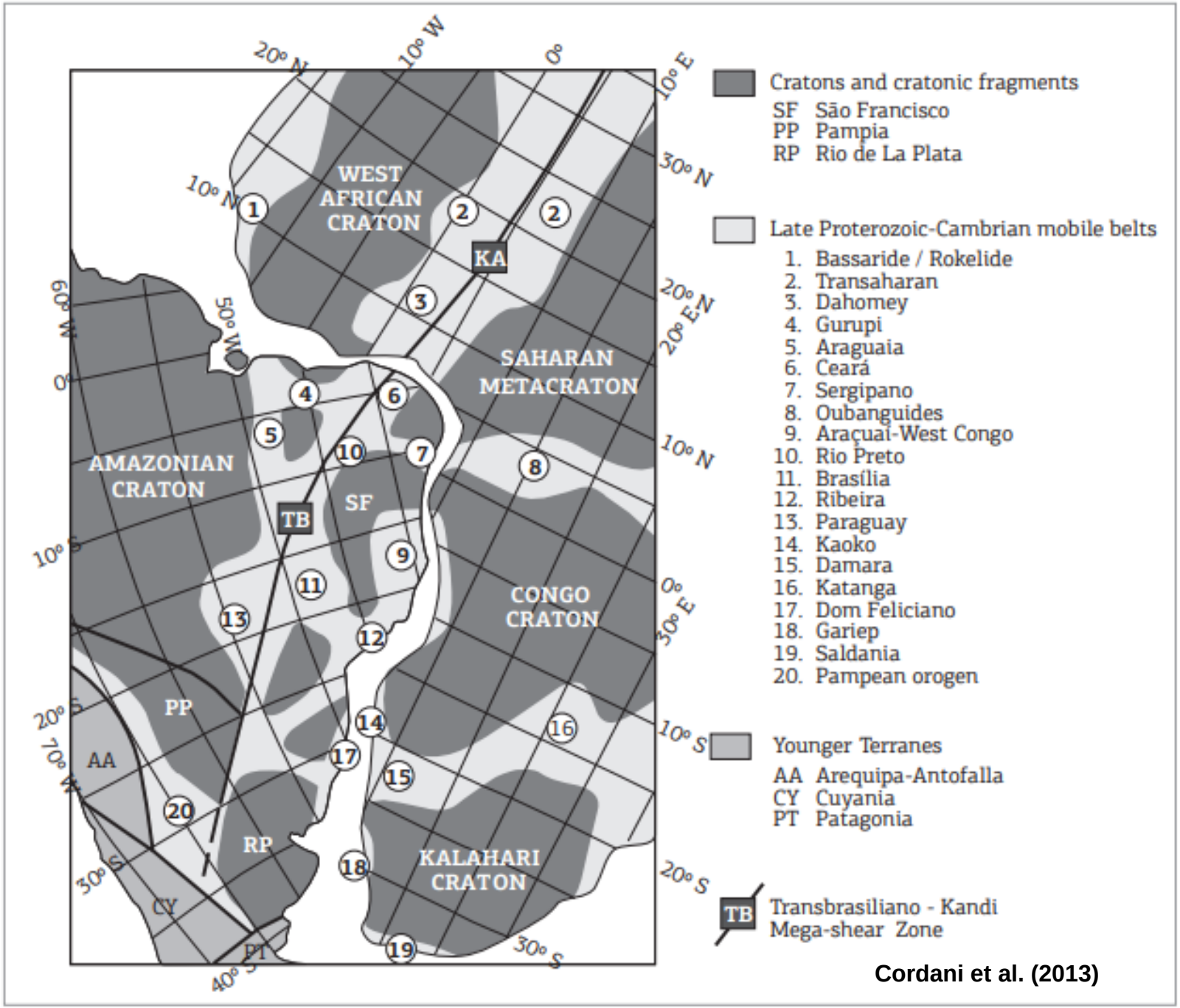
Brito Neves et al. (2014)

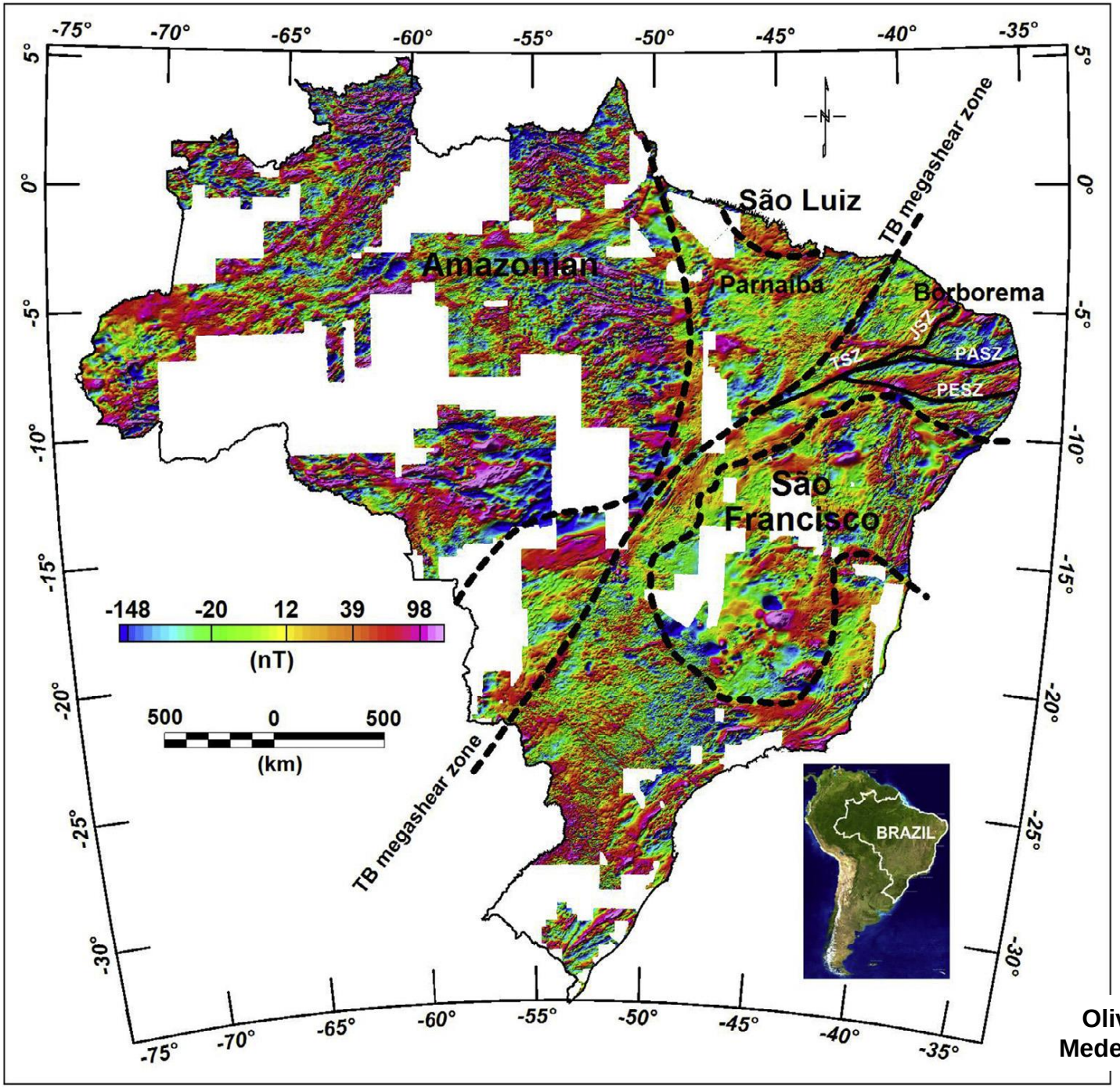
EVIDÊNCIA #1 – ARCO MAGMÁTICO DE SANTA QUITÉRIA



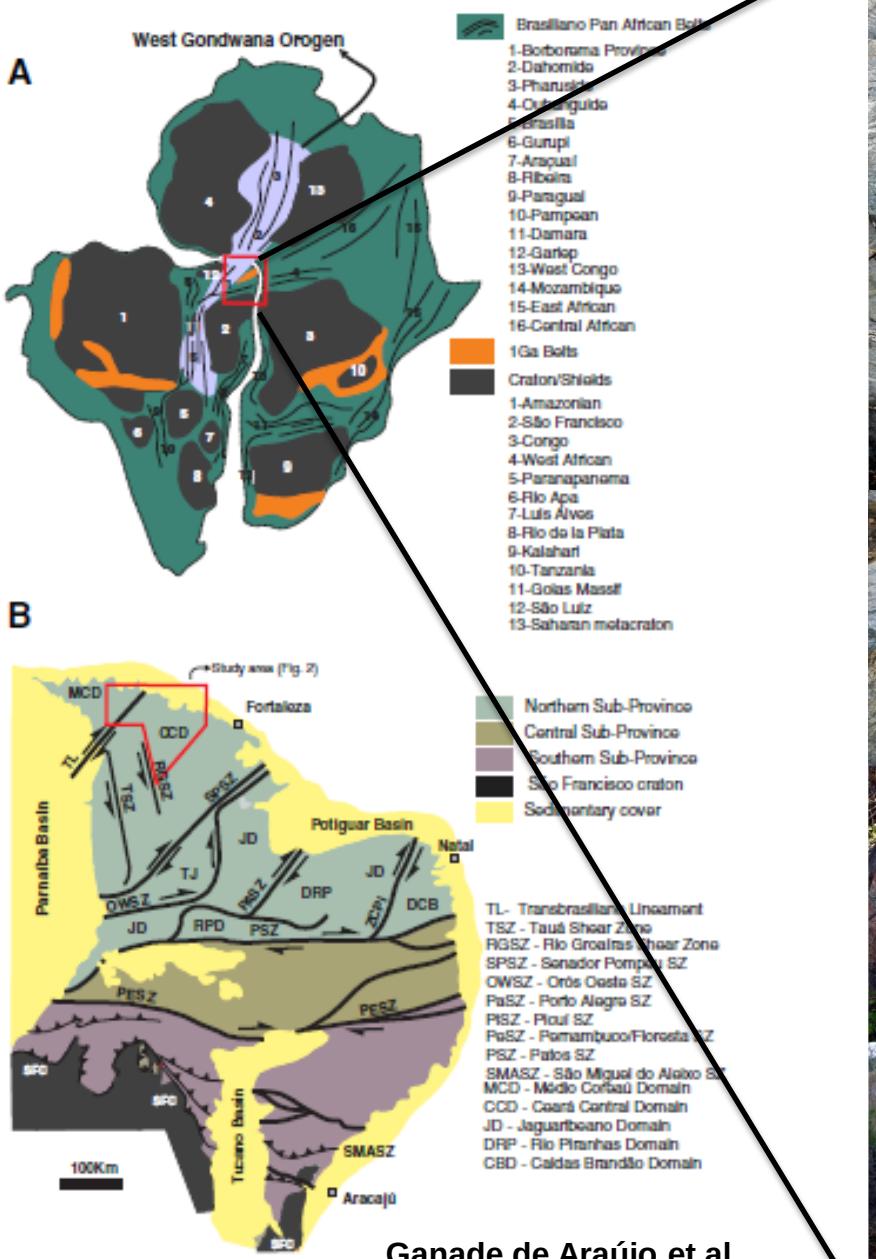
Cordani et al. (2013)



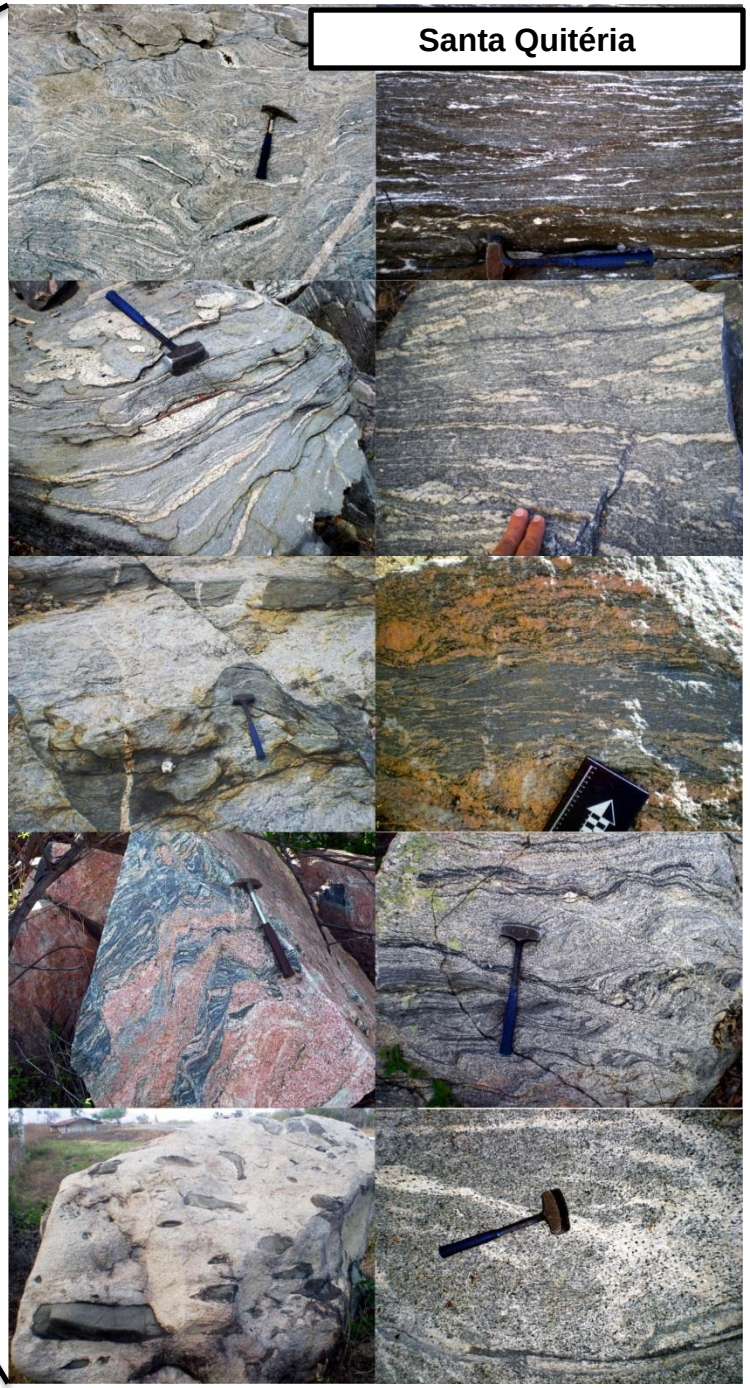
Cordani et al. (2013)

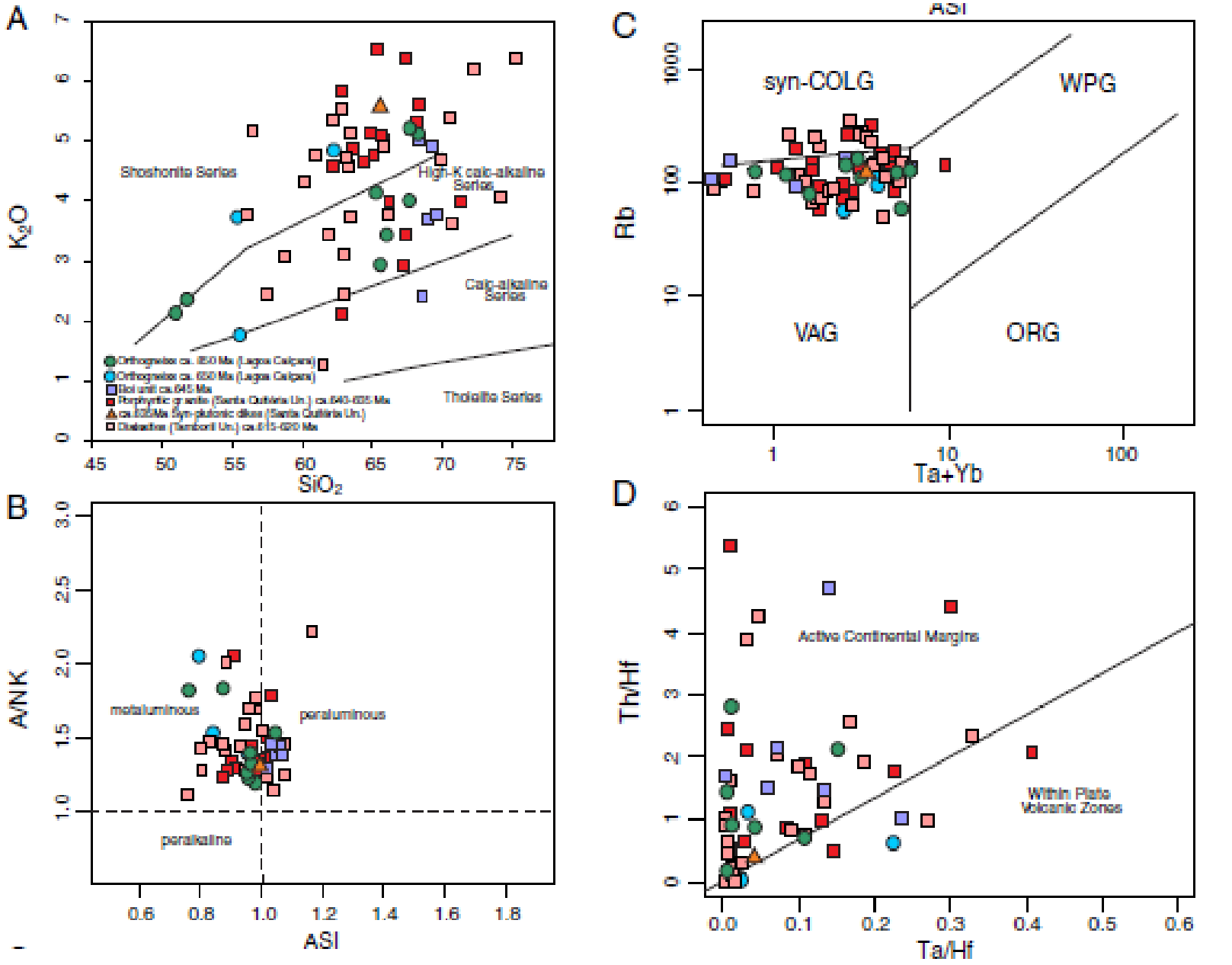


Oliveira and Medeiros (2018)

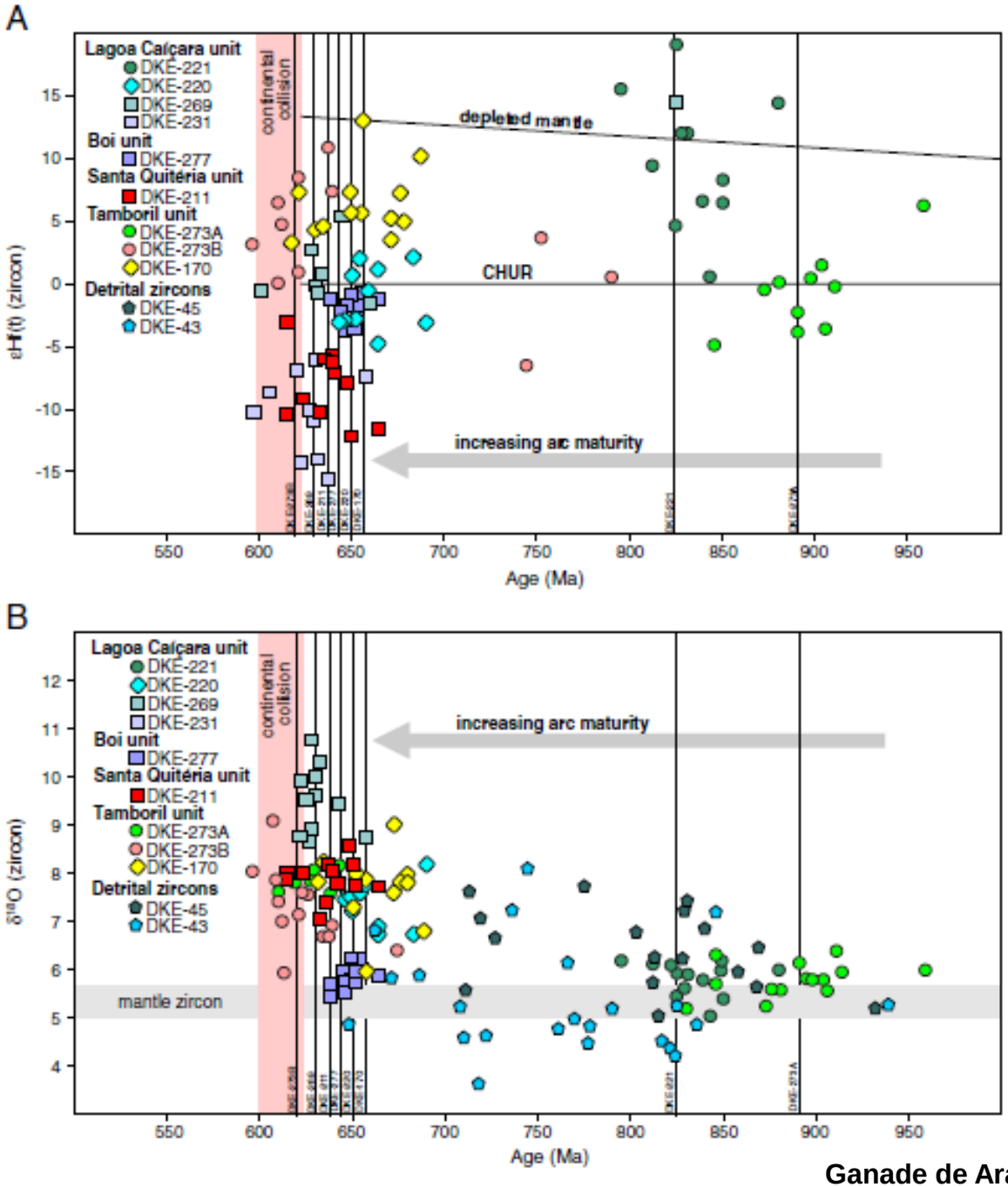


Ganade de Araújo et al. (2014)

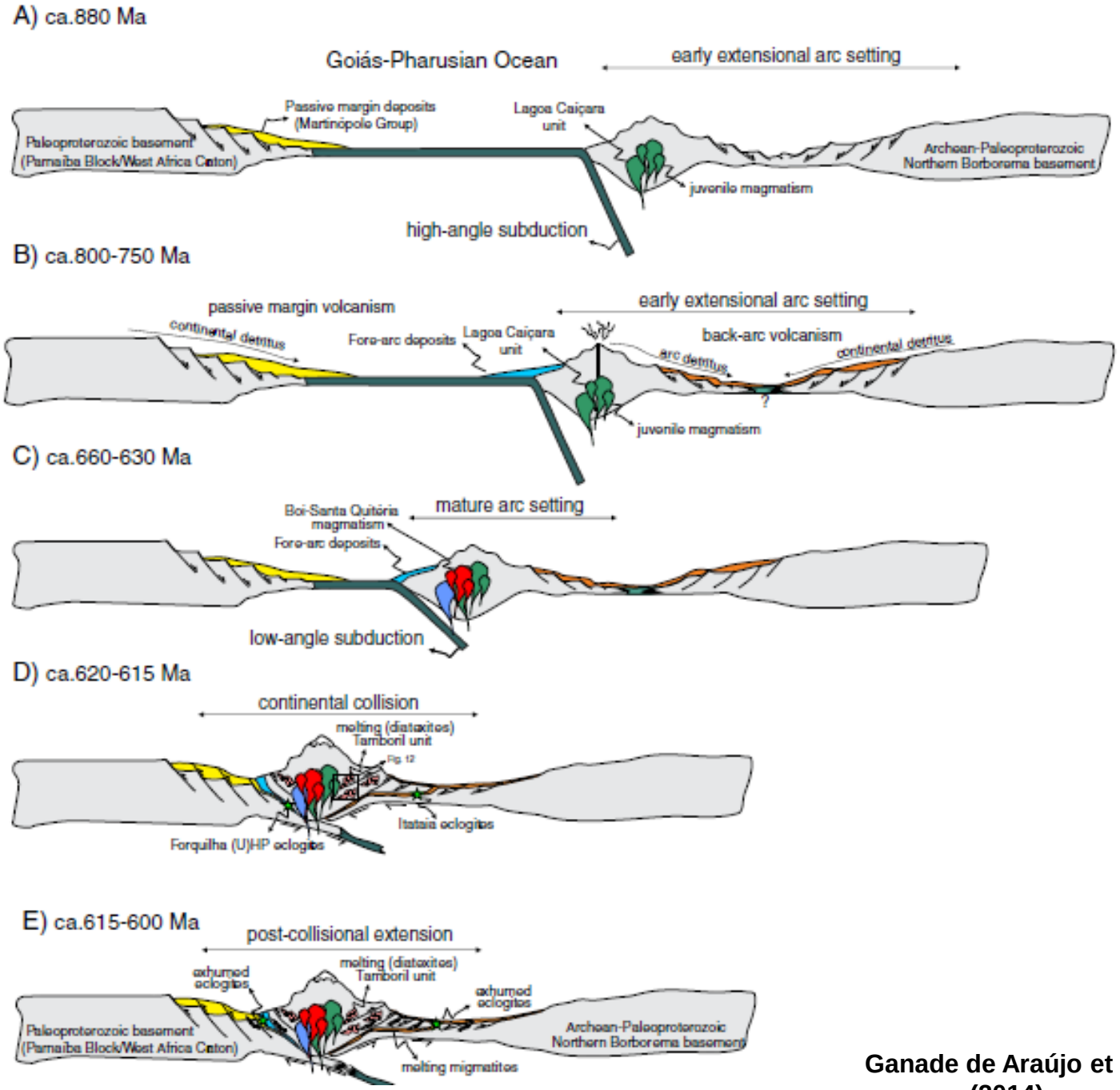




Ganade de Araújo et al. (2014)

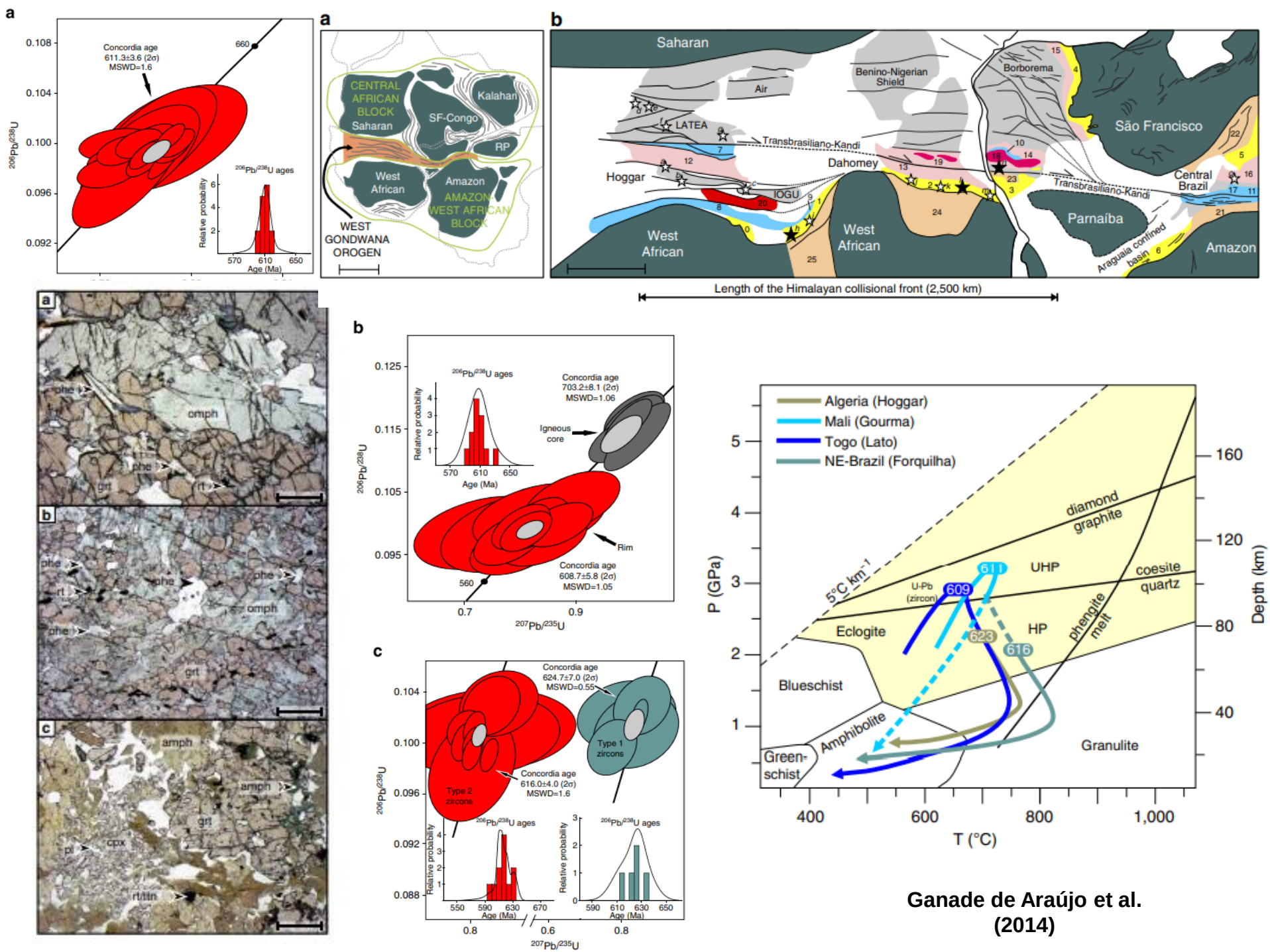


Ganade de Araújo et al. (2014)

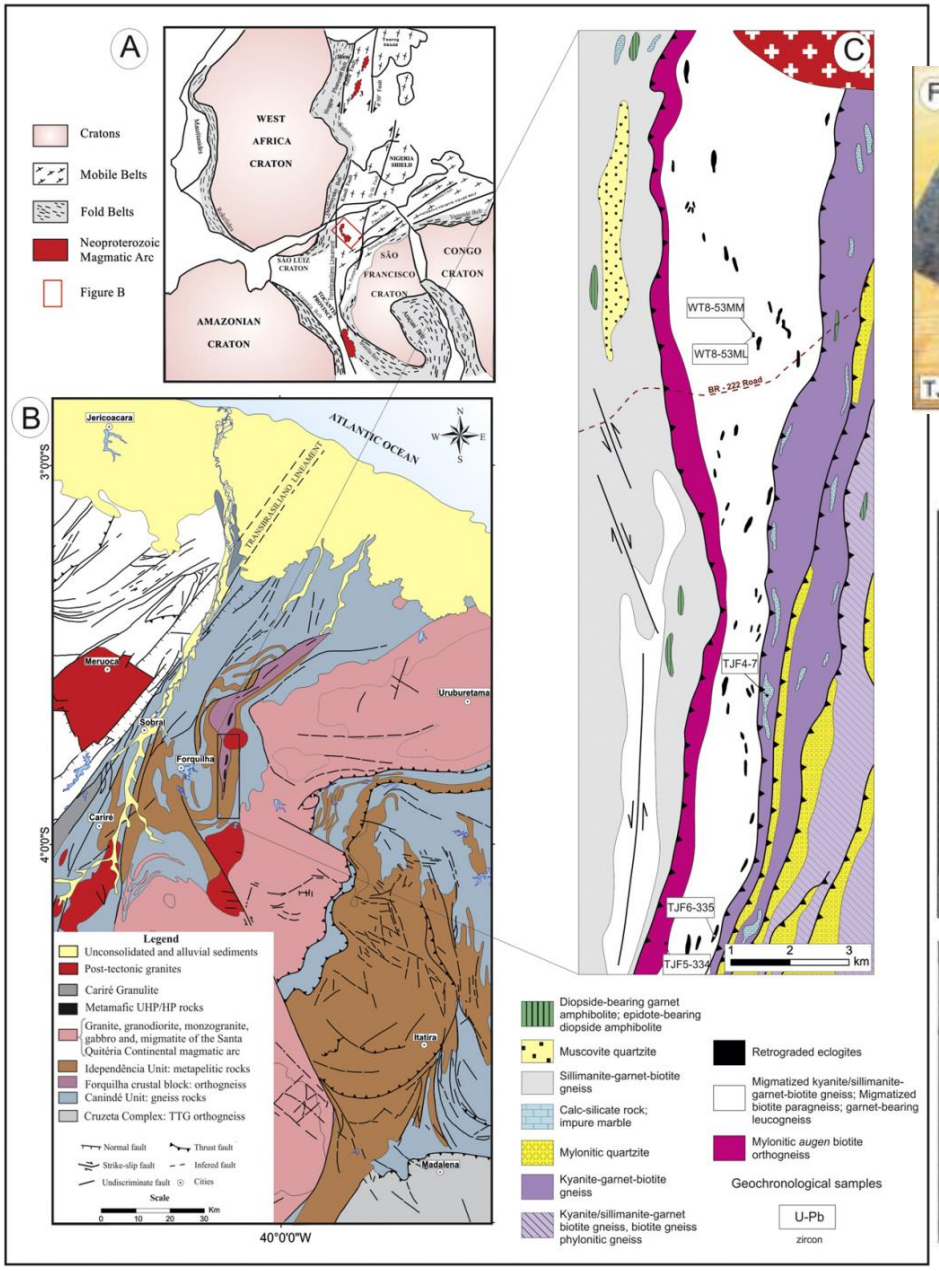


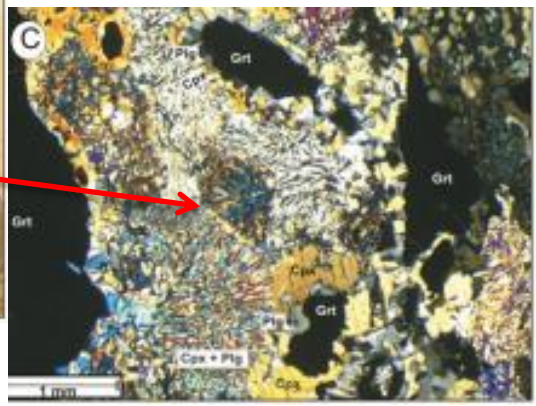
Ganade de Araújo et al. (2014)

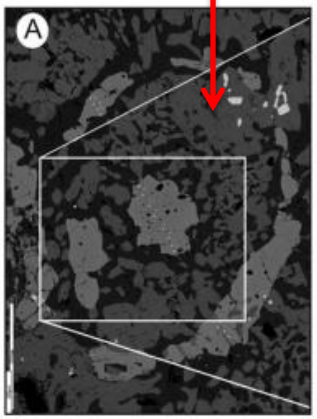
EVIDÊNCIA #2 - ZONA ECLOGÍTICA DE FORQUILHA

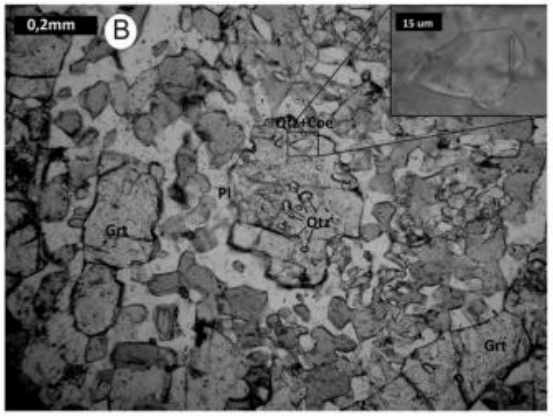


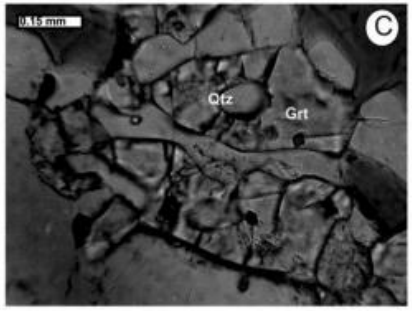
Ganade de Araújo et al. (2014)

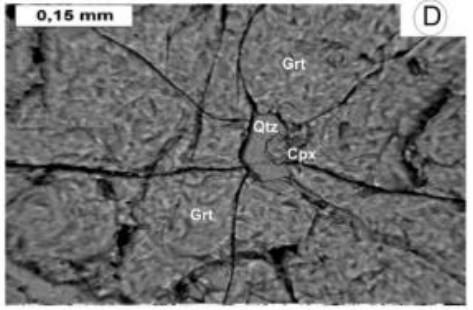




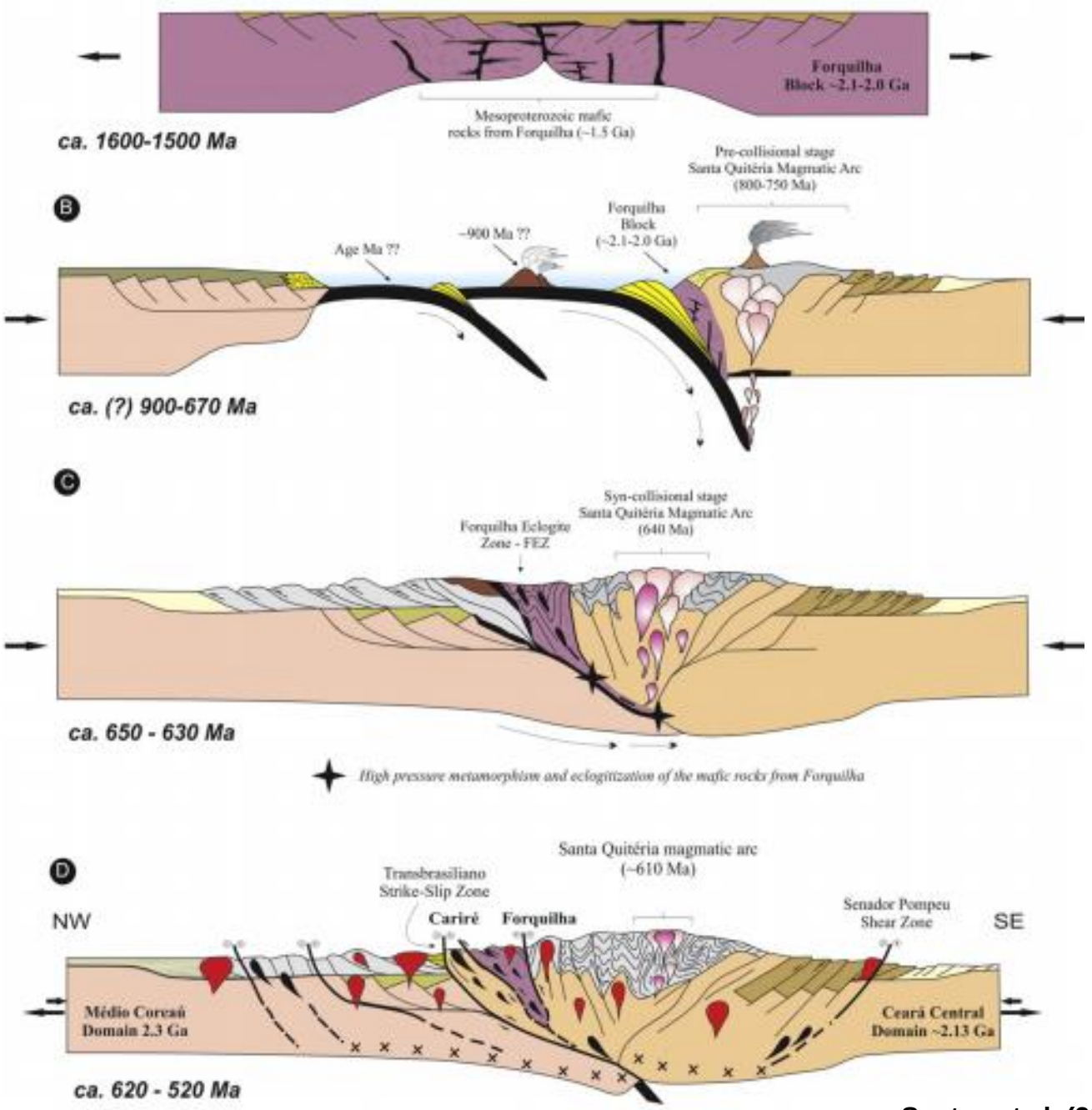






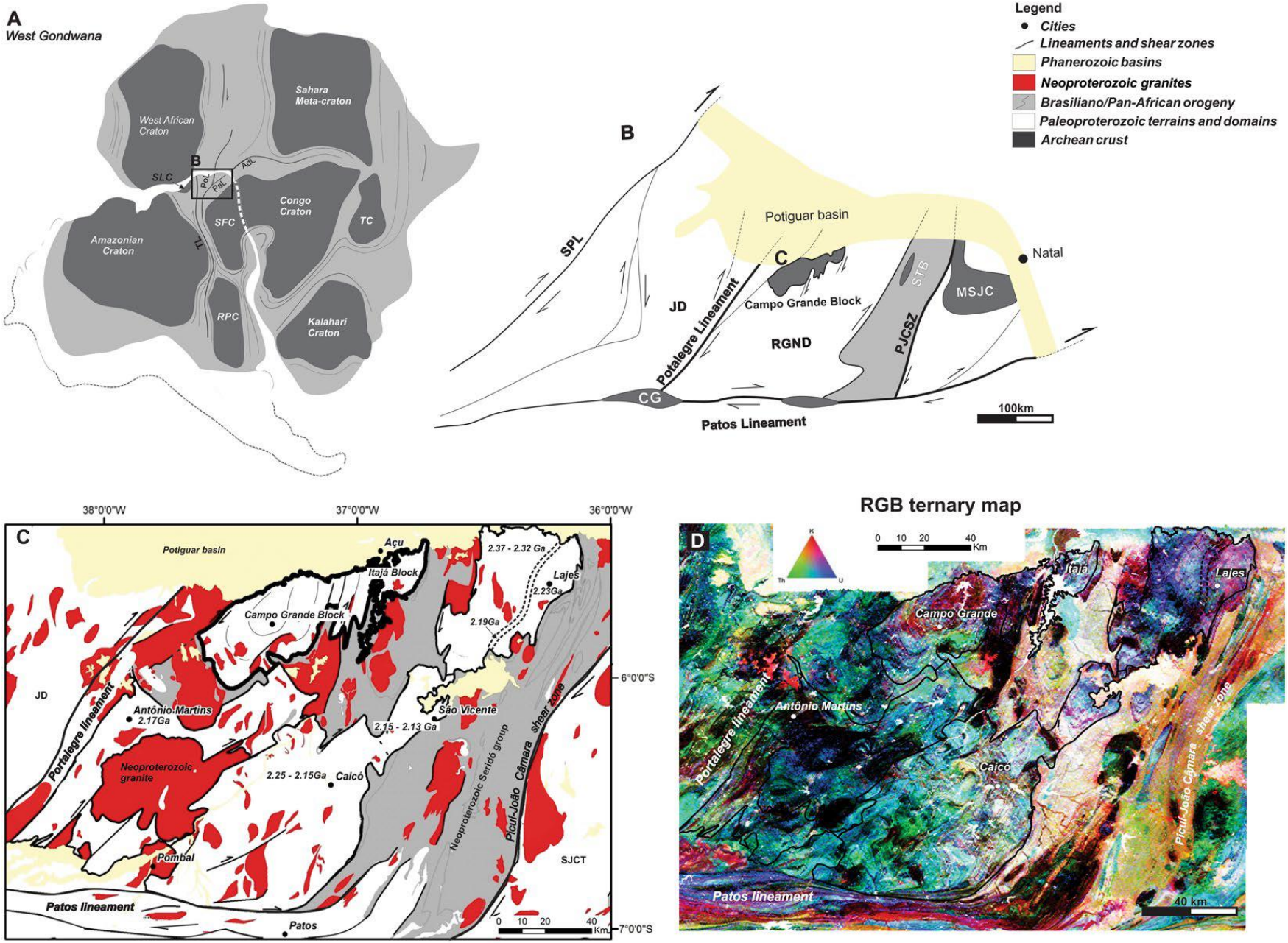


Santos et al. (2015)

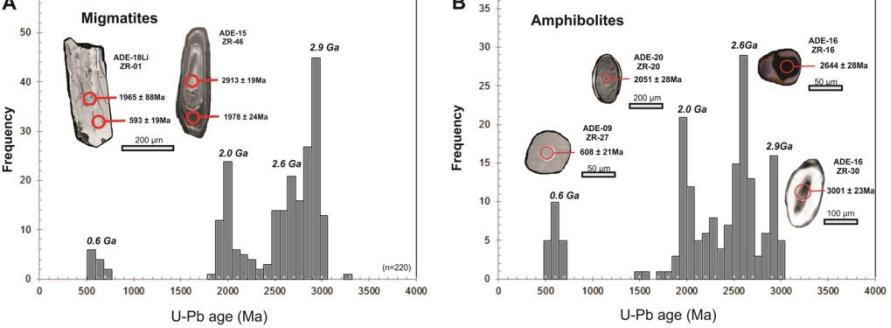


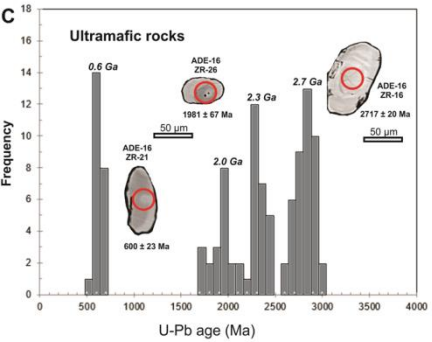
Santos et al. (2015)

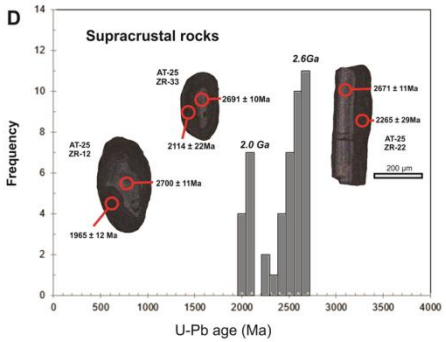
EVIDÊNCIA #3 – TERRENO CAMPO GRANDE

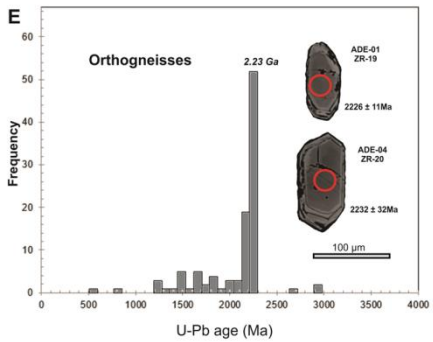


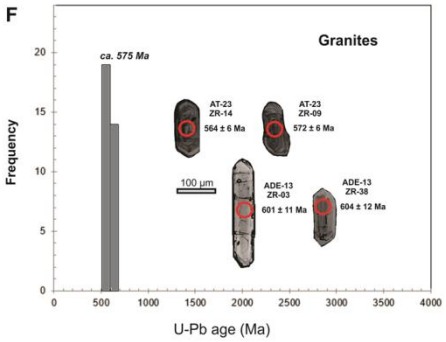
Ferreira et al., (2020)

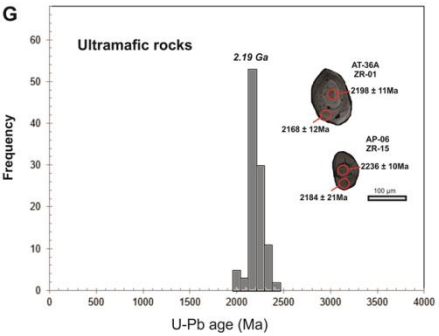


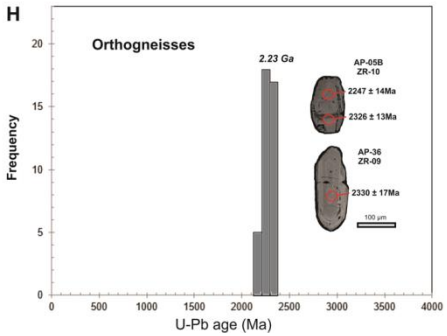


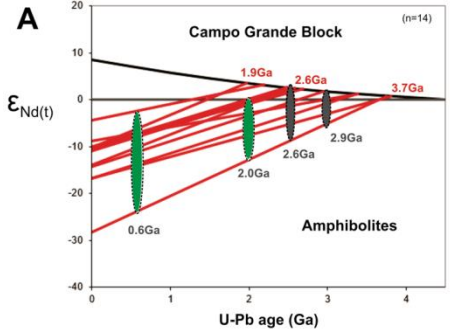


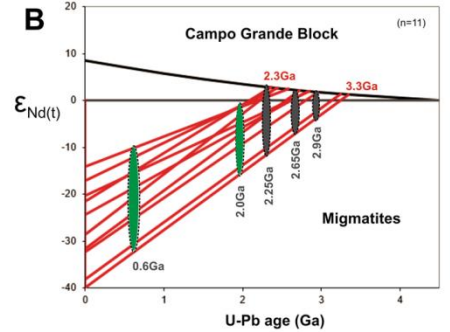


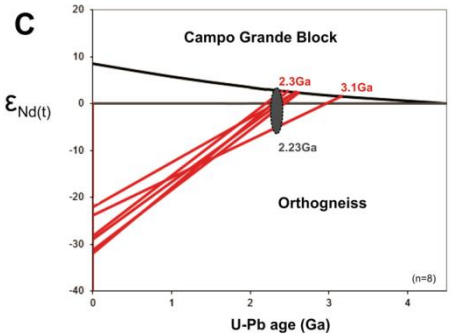


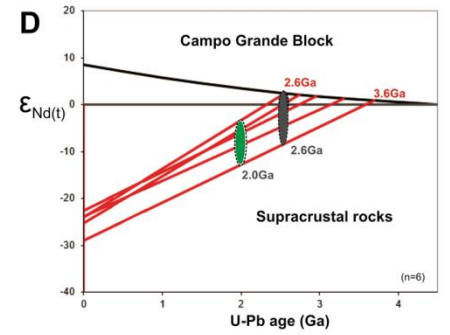


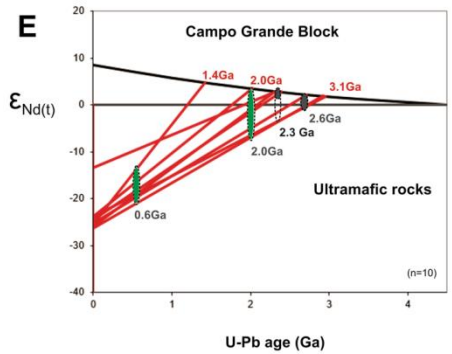


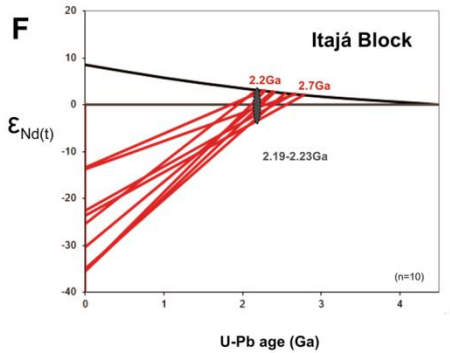


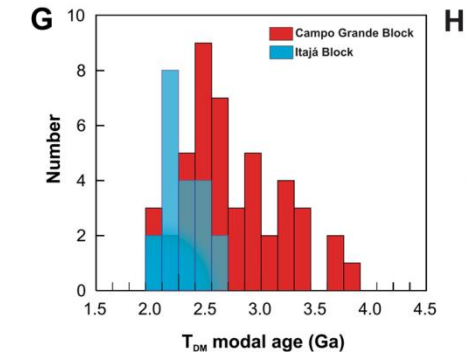


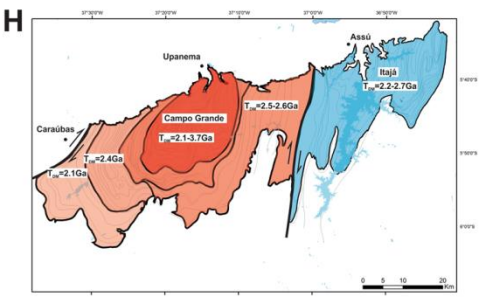






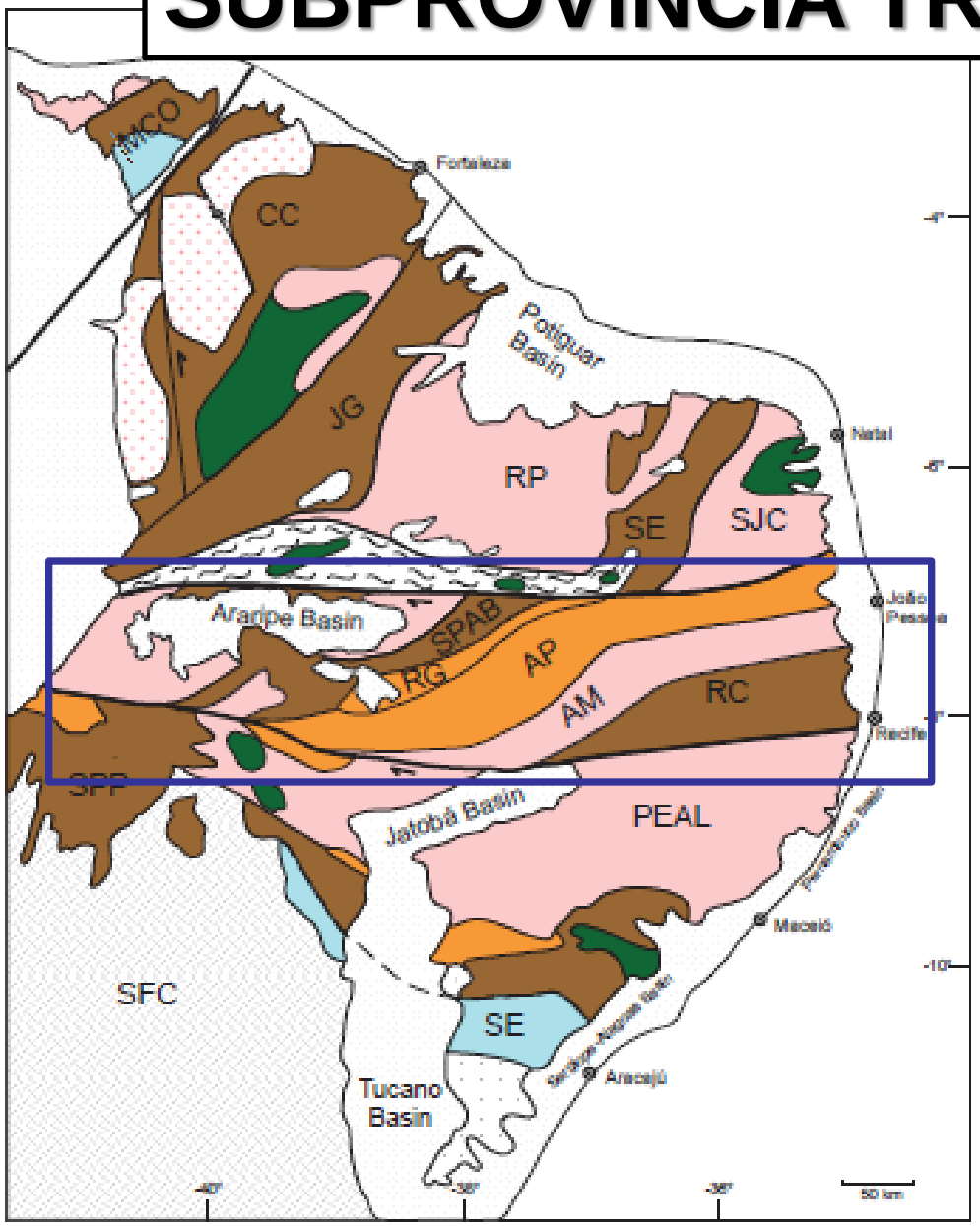






Ferreira et al., (2020)

SUBPROVÍNCIA TRANSVERSAL



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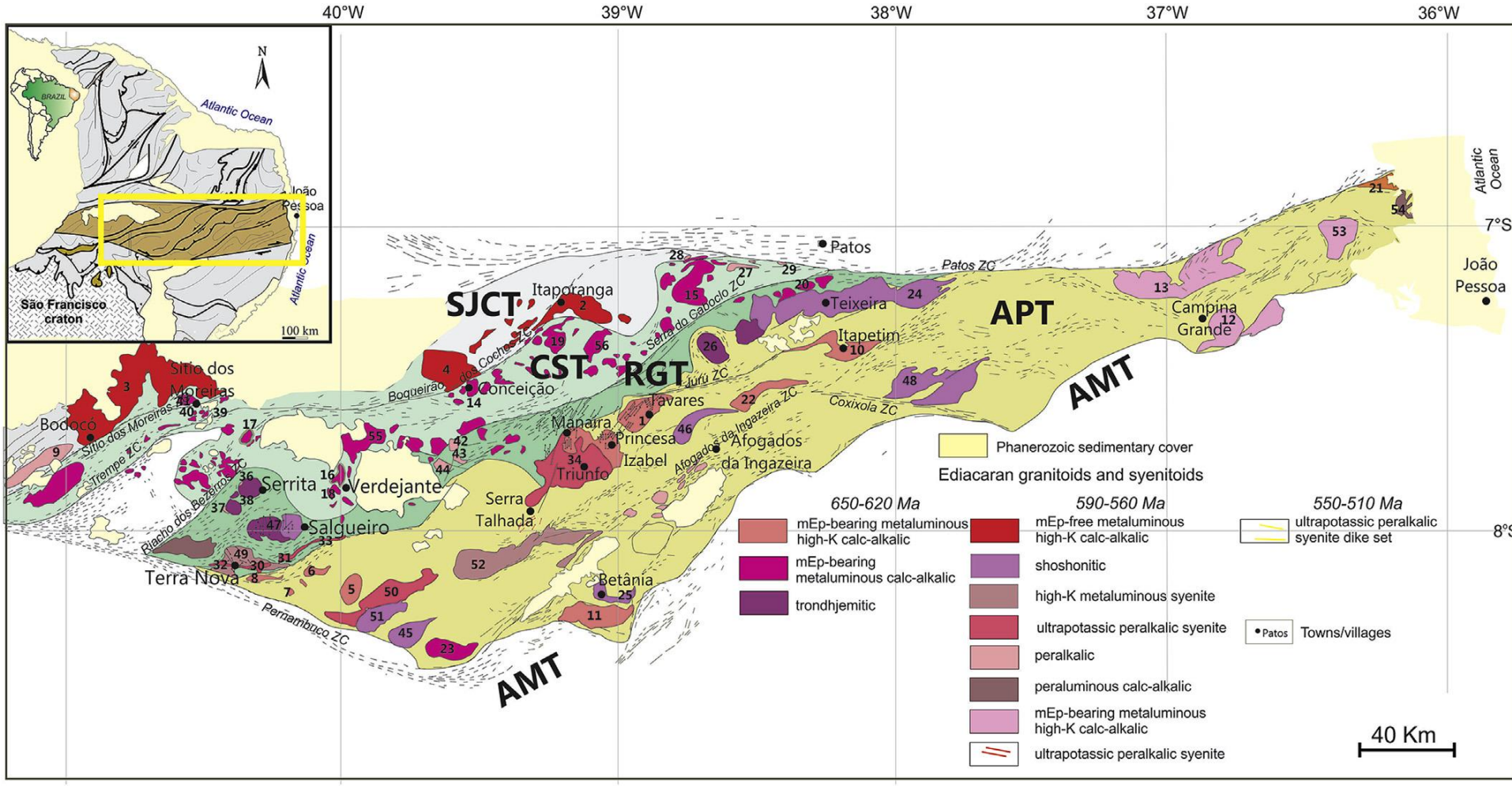
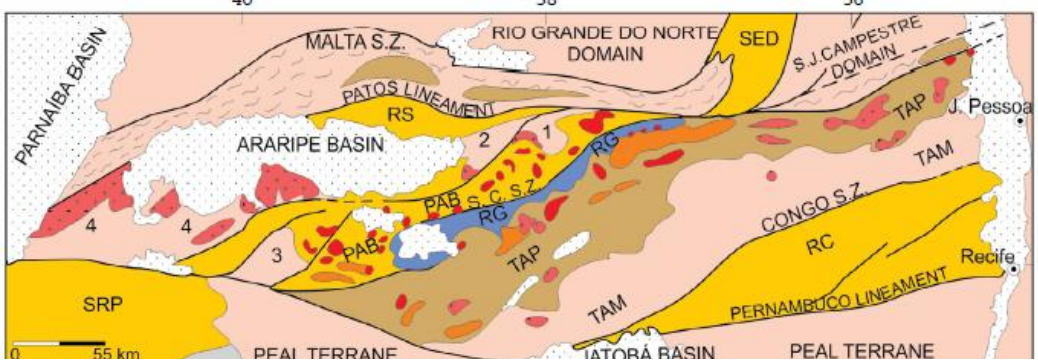
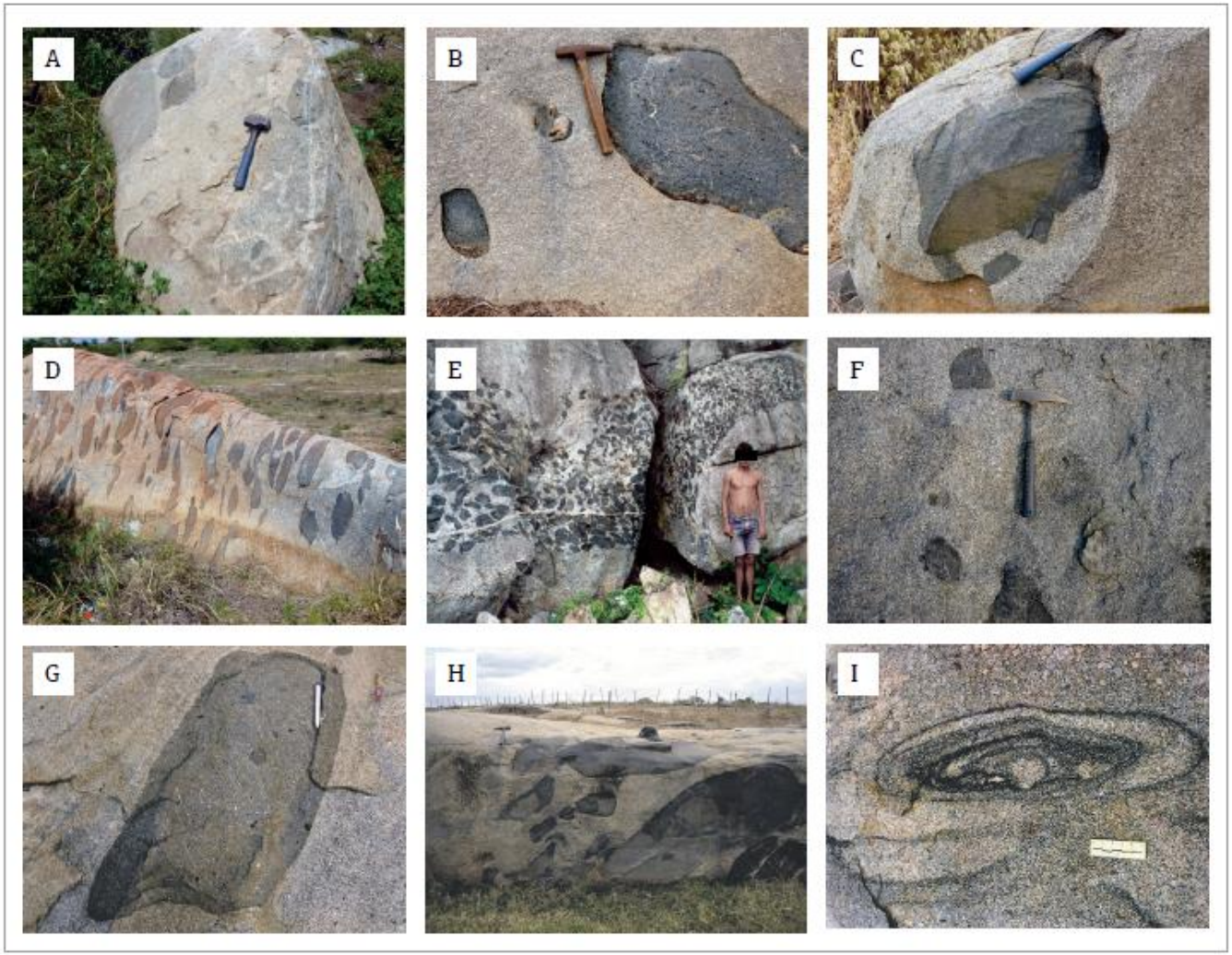
Brito Neves et al. (2014)

EVIDENCE #3 – ARCO MAGMÁTICO PIANCÓ-ALTO BRÍGIDA

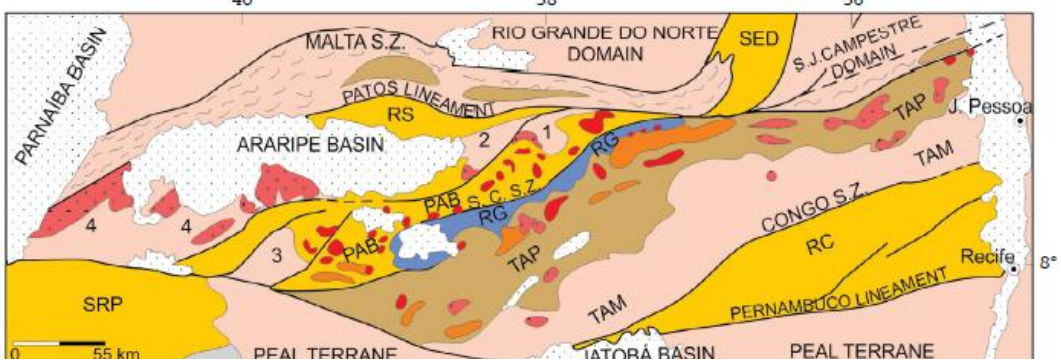


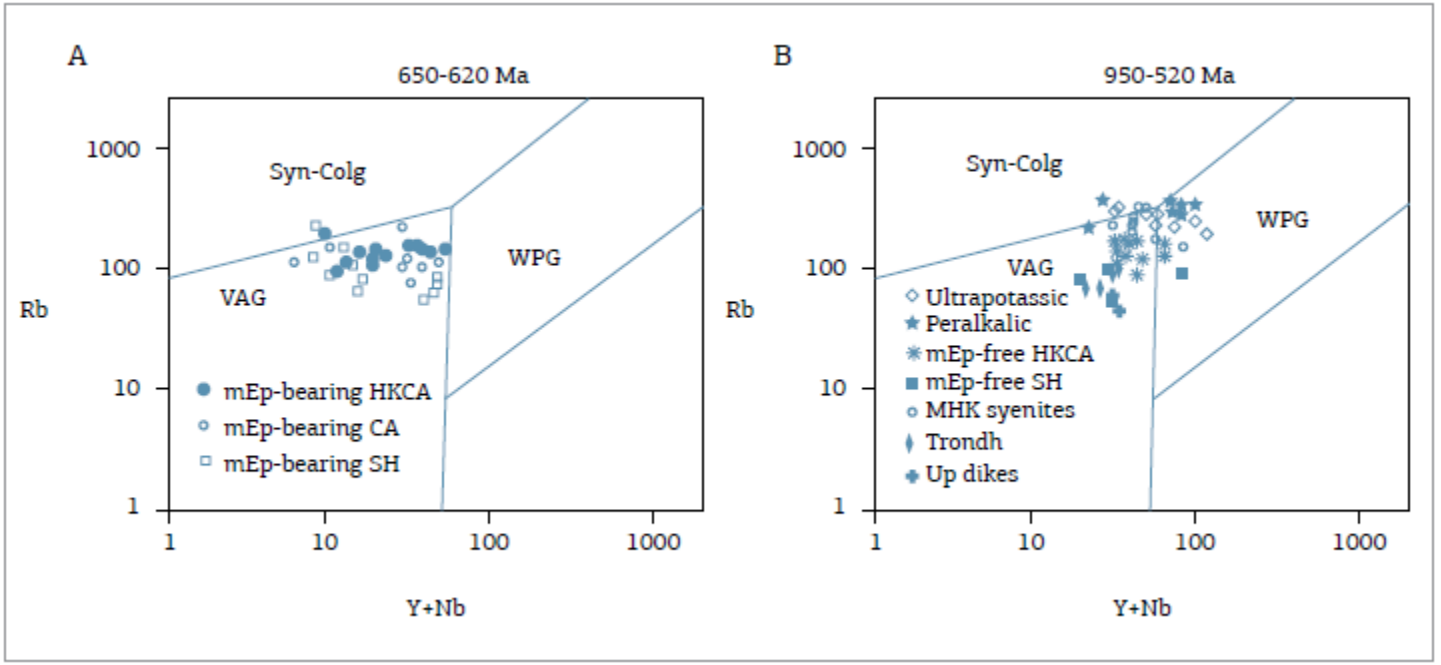
Sial e Ferreira (2015)



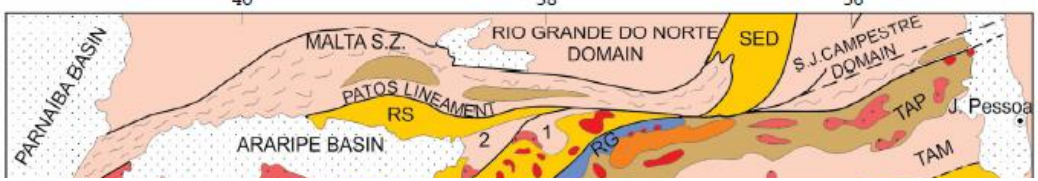


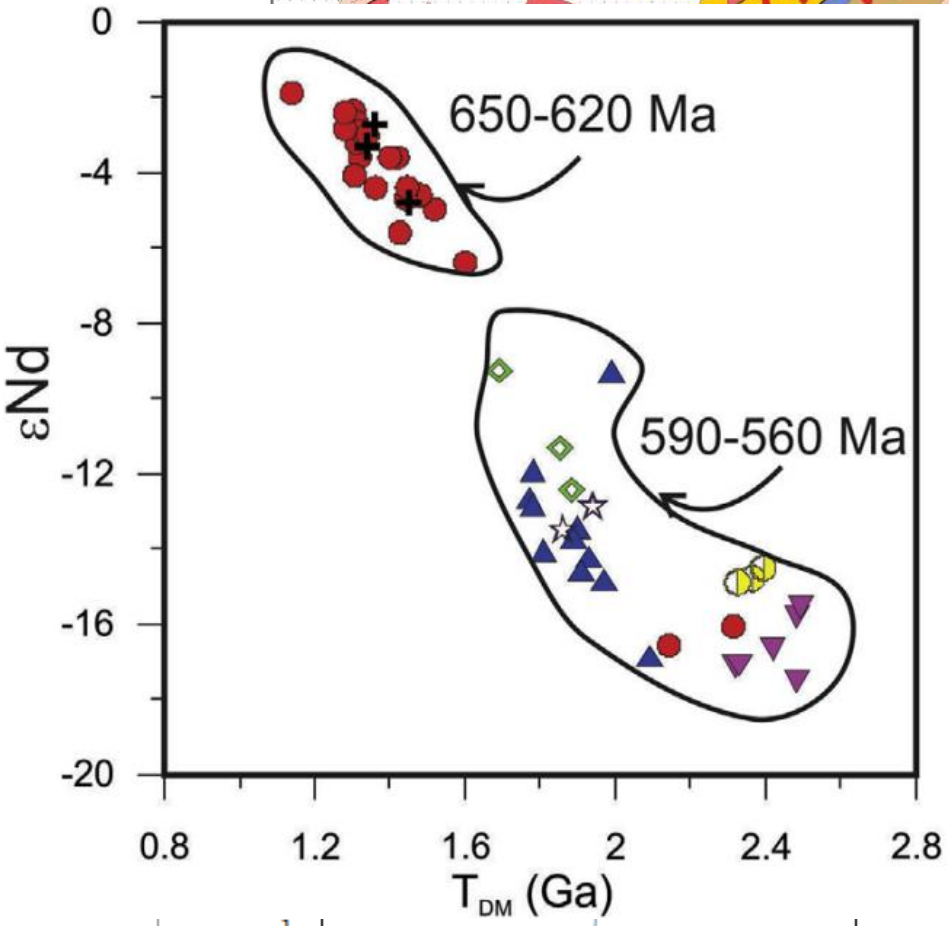
Brito Neves et al. (2016)





Brito Neves et al. (2016)

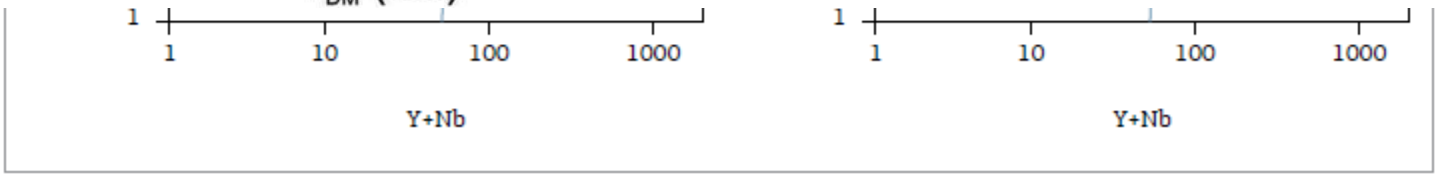




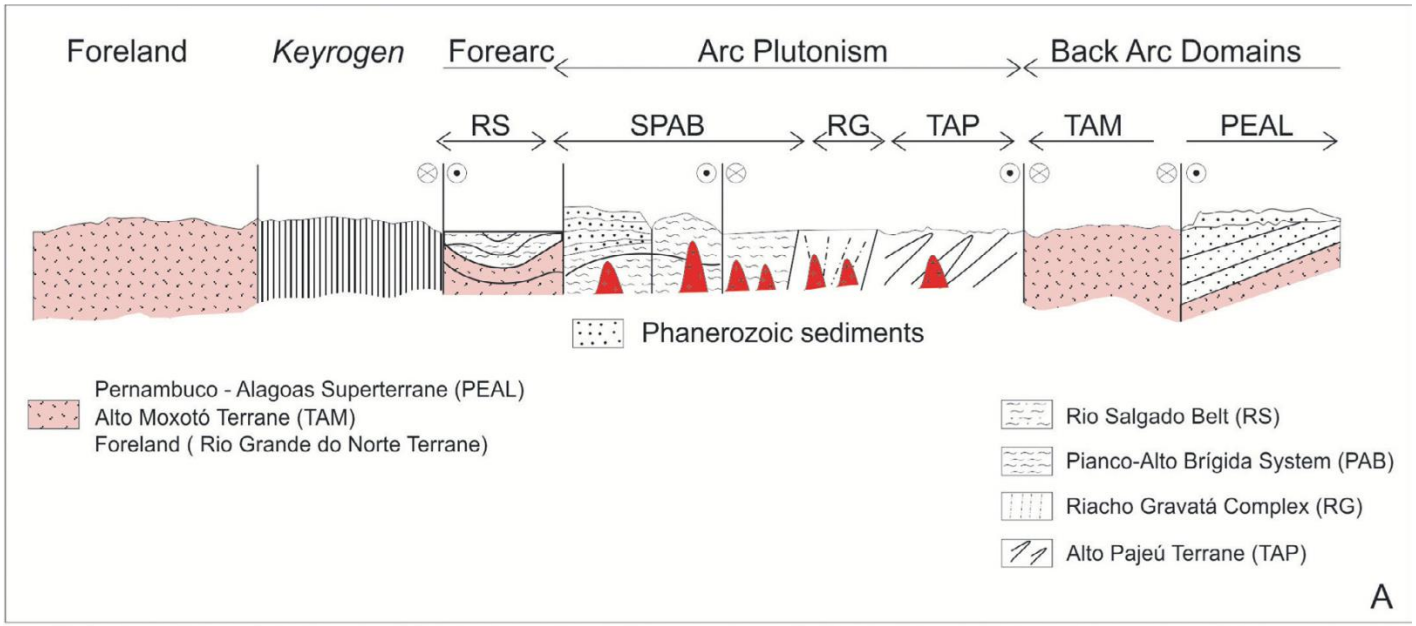
Magma series

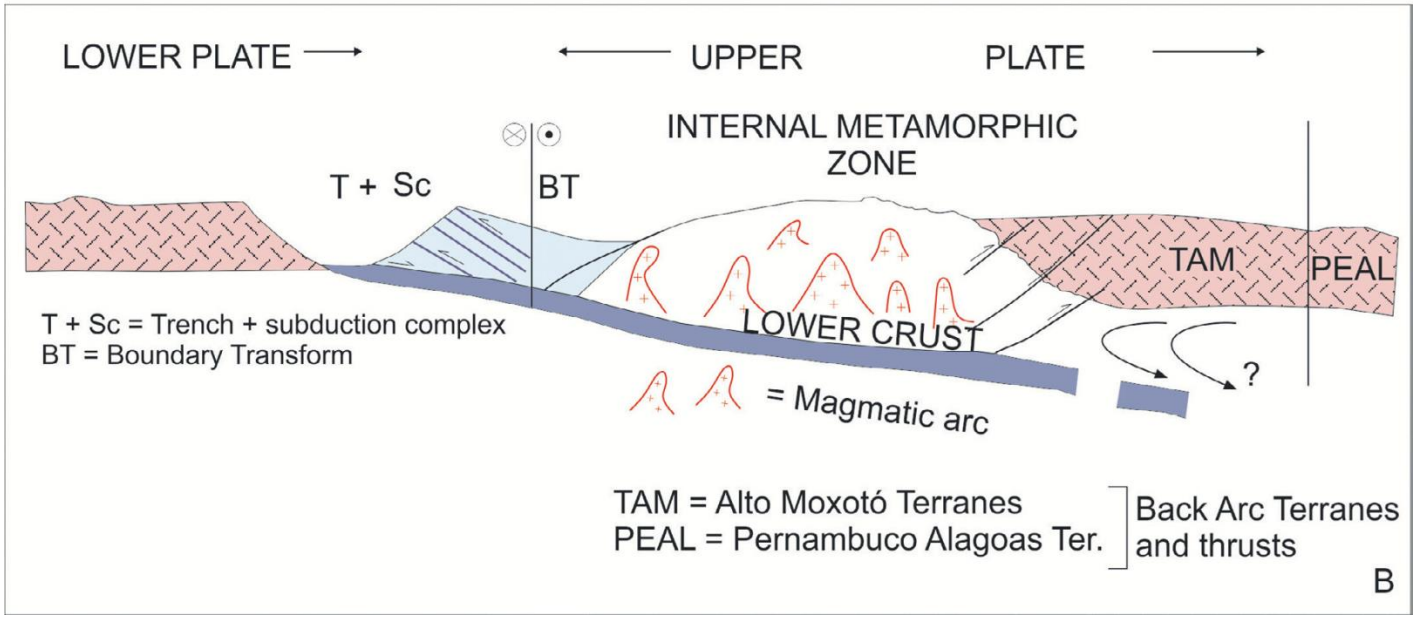
- 650-620 Ma mep-bearing calc-alkalic
- 650-620 Ma mEp-bearing calc-alkalic
- 590-560 Ma mEp-free high-K calc-alkalic
- 590-560 Ma shoshonitic
- 590-560 Ma high-K calc-alkalic metaluminous syenite
- 590-560 Ma utrapotassic peralkalic syenite
- 590-560 Ma peraluminous calc-alkalic

Sial e Ferreira (2015)



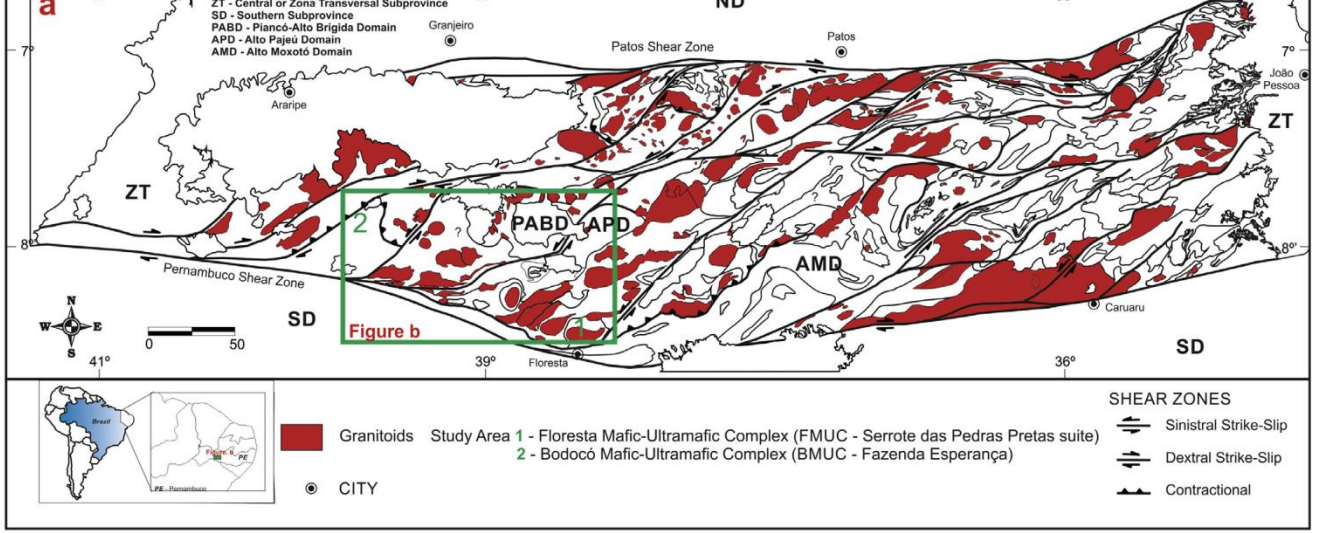
Brito Neves et al. (2016)

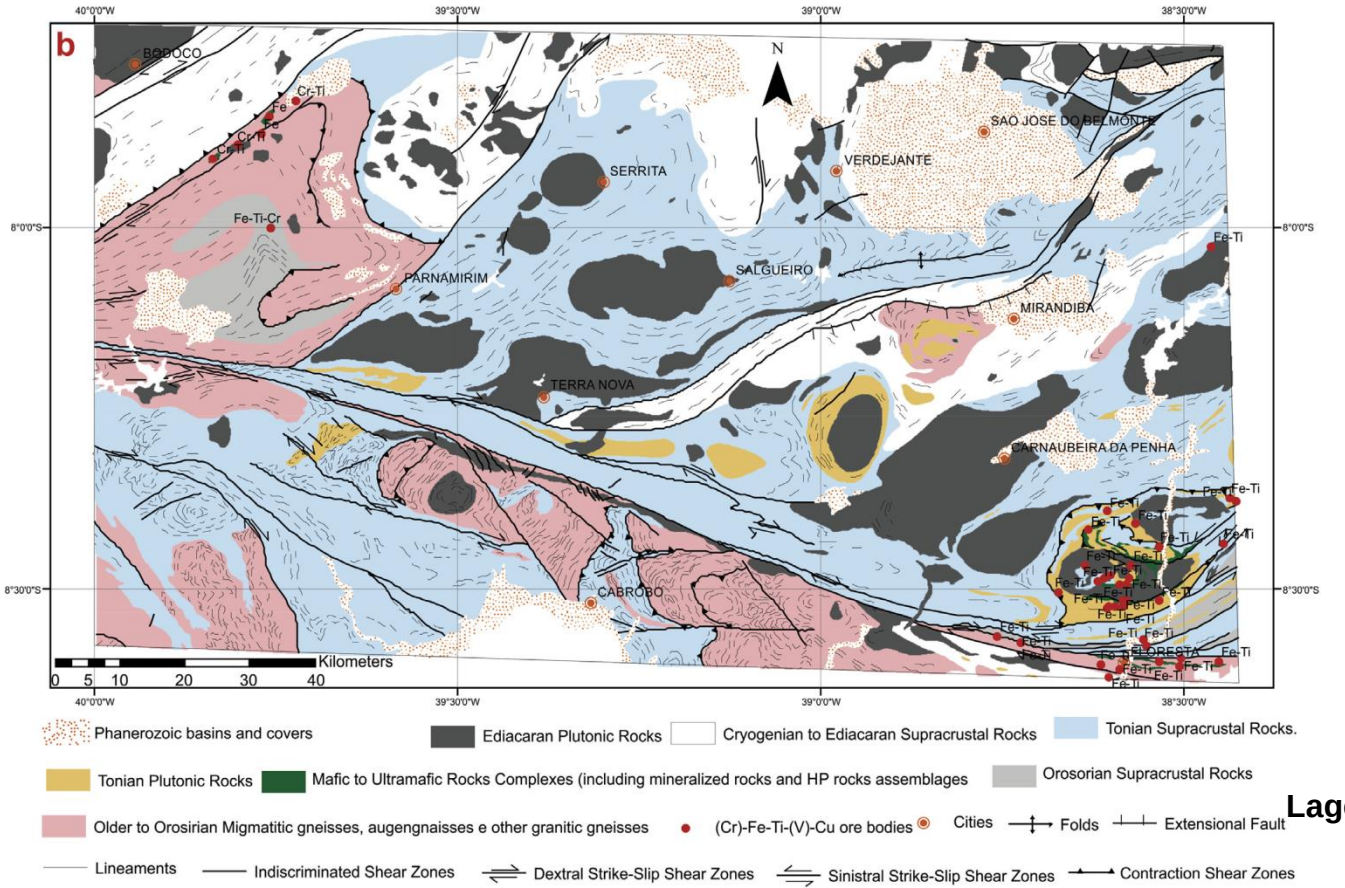




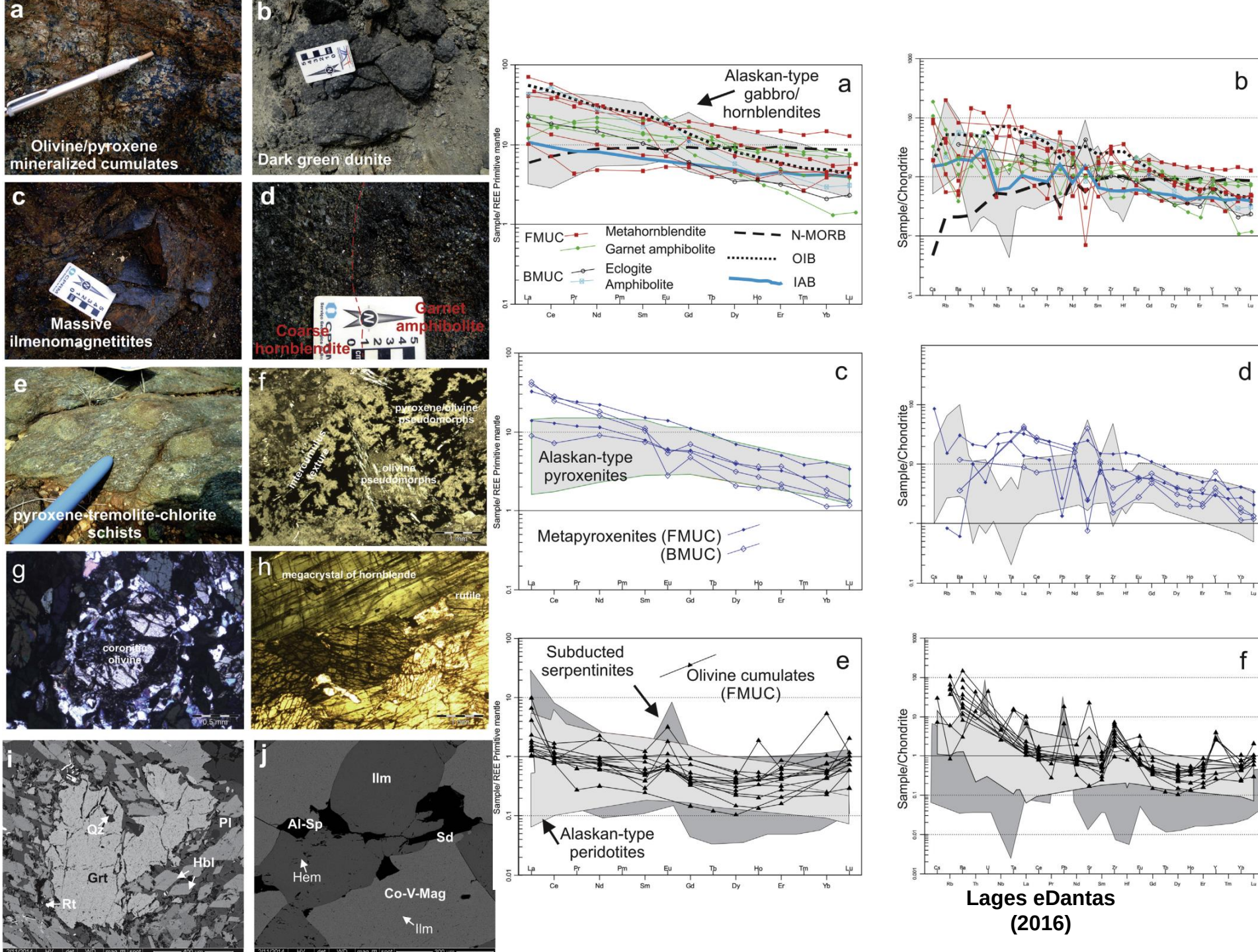
Brito Neves et al. (2016)

EVIDÊNCIA #4 – SUÍTE SERROTE DAS PEDRAS PRETAS

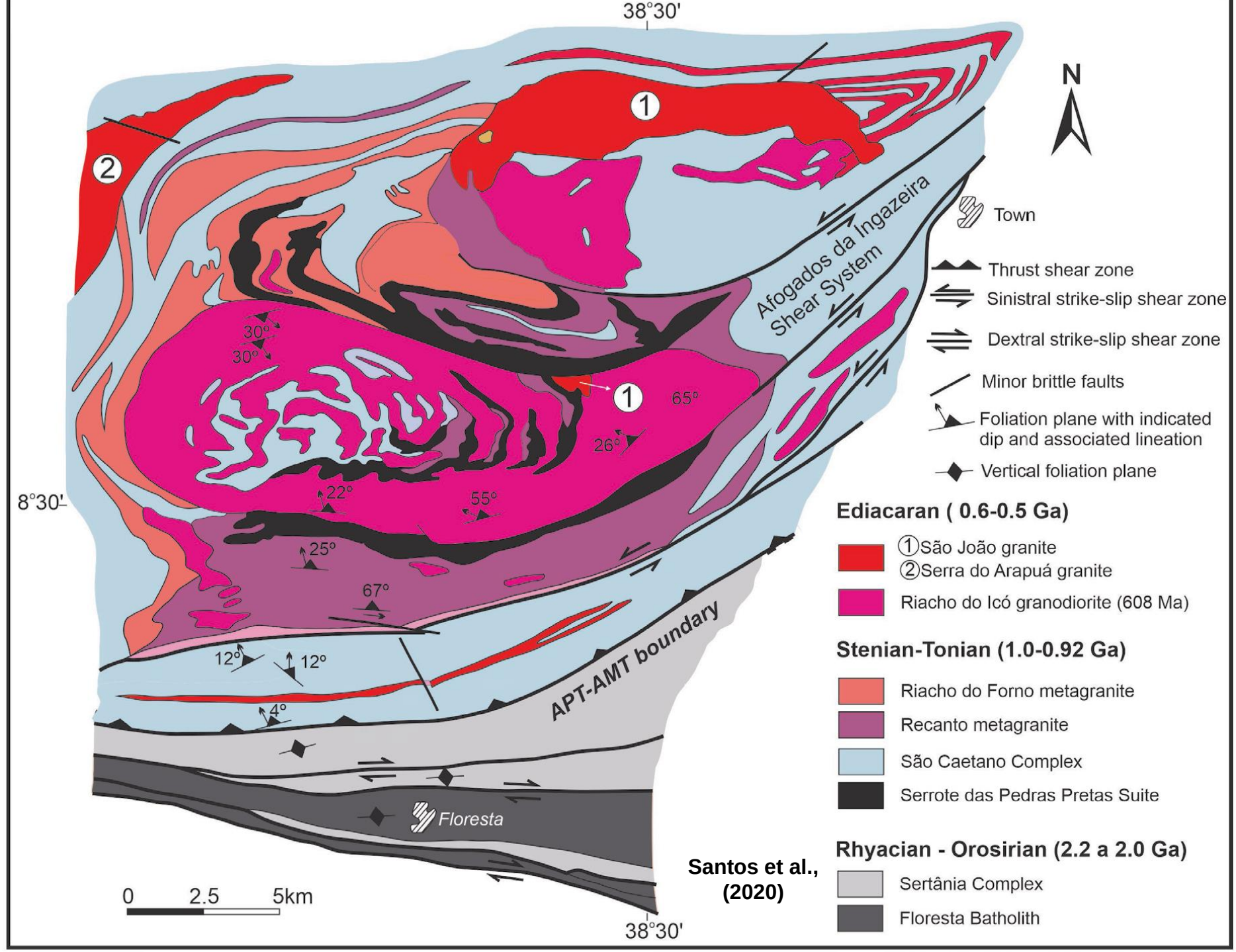


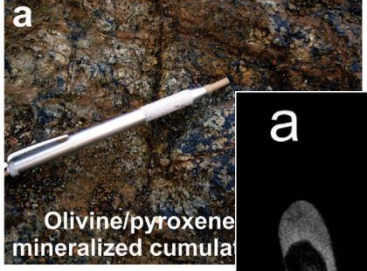


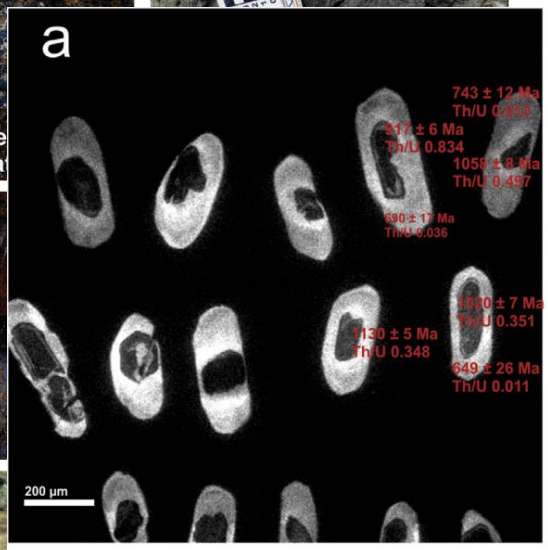
Lages e Dantas (2016)

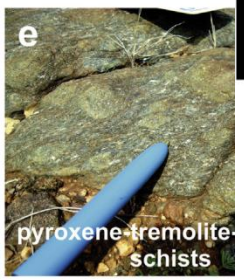


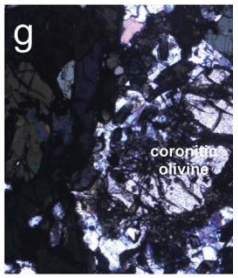
Lages eDantas (2016)

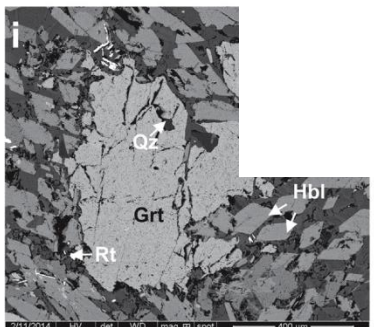

38°30'
8°30'
N
1
2
Afogados da Ingazeira
Shear System
APT-AMT boundary
Floresta
30°
30°
65°
26°
22°
55°
25°
67°
12°
12°
4°
0
2.5
5km
Town
Thrust shear zone
Sinistral strike-slip shear zone
Dextral strike-slip shear zone
Minor brittle faults
Foliation plane with indicated dip and associated lineation
Vertical foliation plane
Ediacaran (0.6-0.5 Ga)
①São João granite
②Serra do Arapuá granite
Riacho do Icó granodiorite (608 Ma)
Stenian-Tonian (1.0-0.92 Ga)
Riacho do Forno metagranite
Recanto metagranite
São Caetano Complex
Serrote das Pedras Pretas Suite
Rhyacian - Orosirian (2.2 a 2.0 Ga)
Sertânia Complex
Floresta Batholith
Santos et al., (2020)

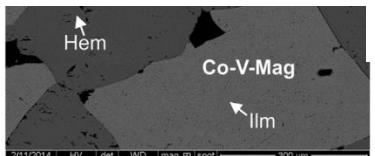


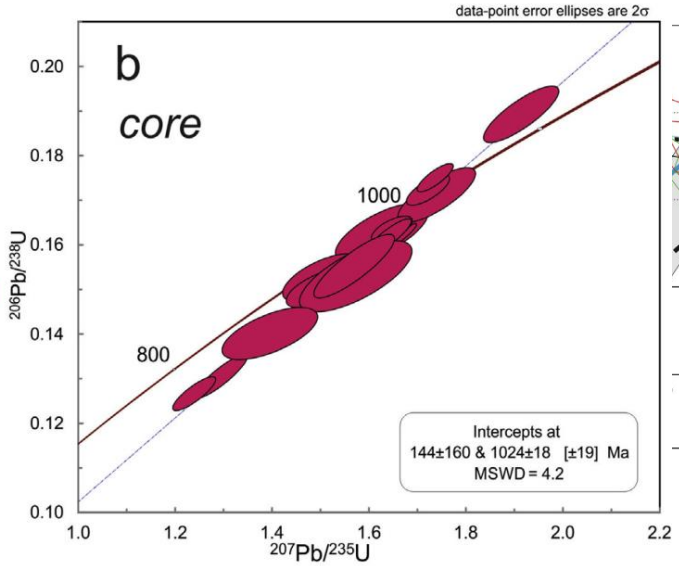


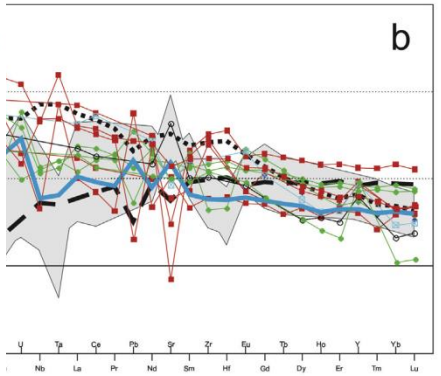


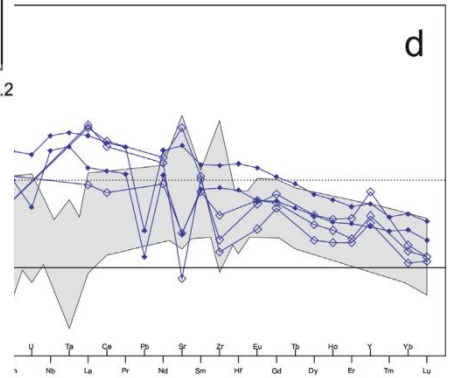


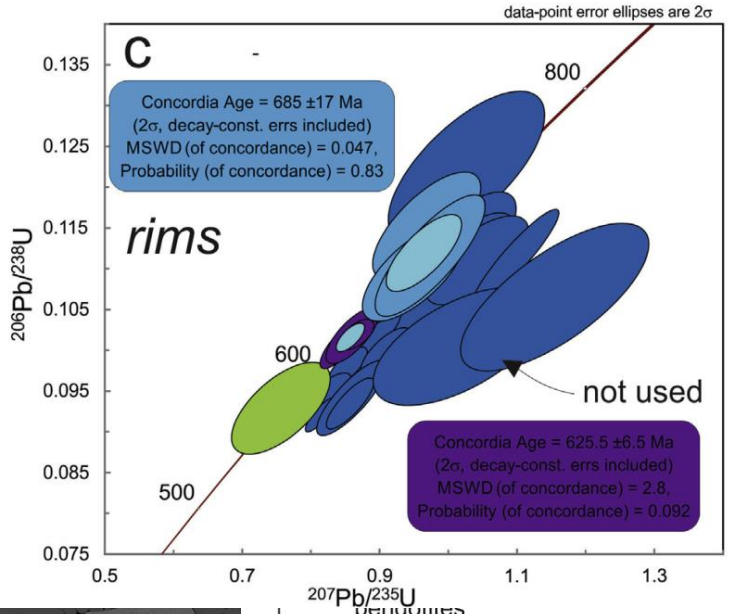


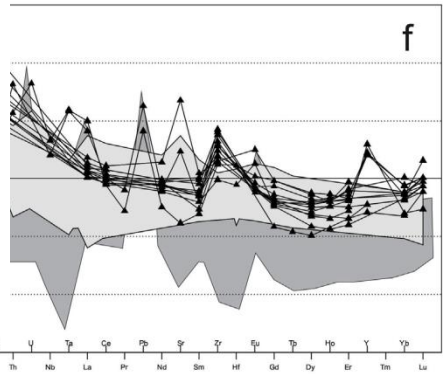




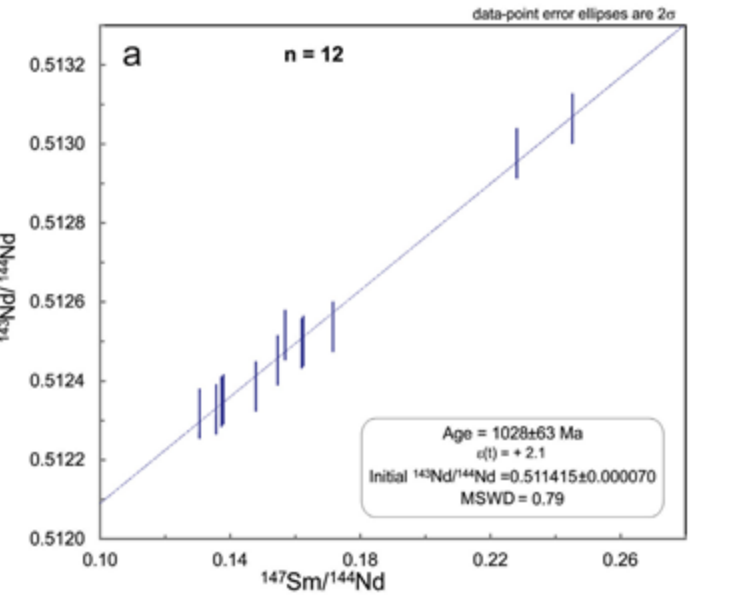


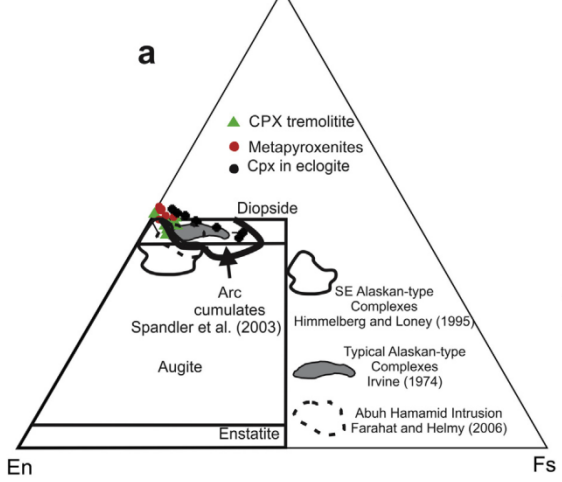


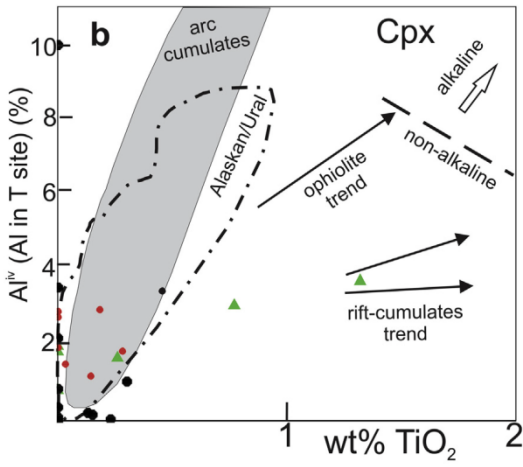


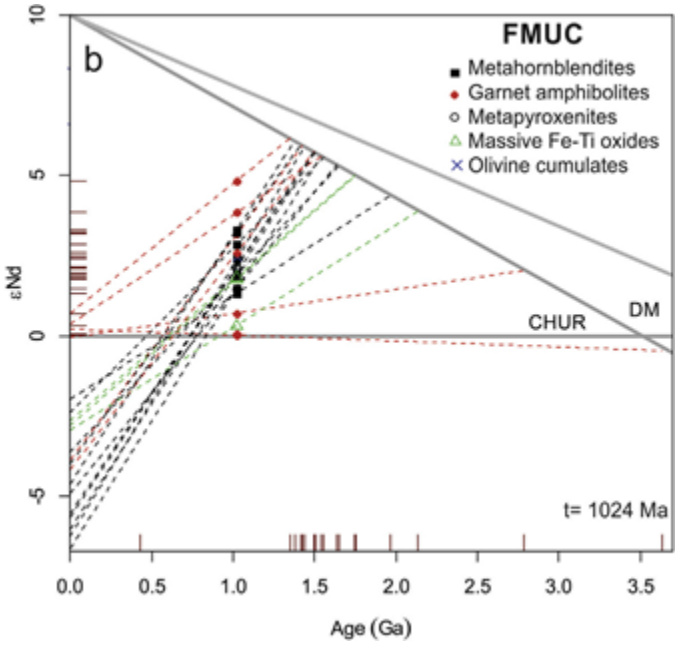


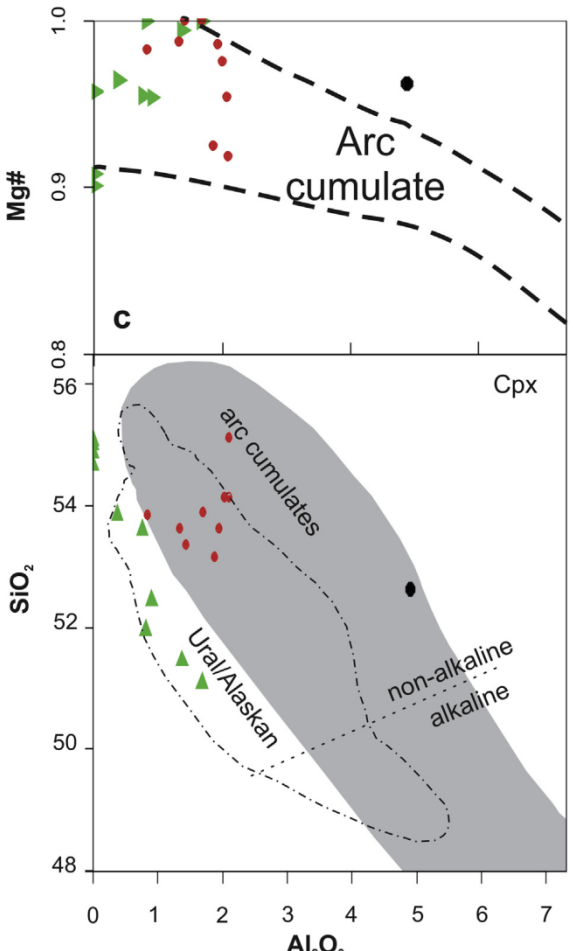
Lages and Dantas (2016)

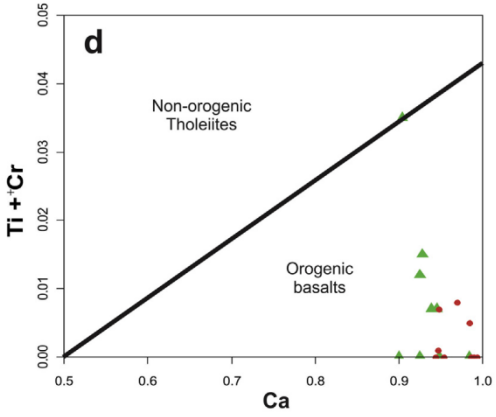












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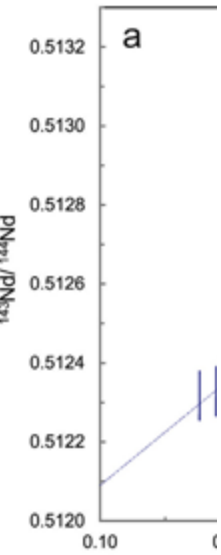
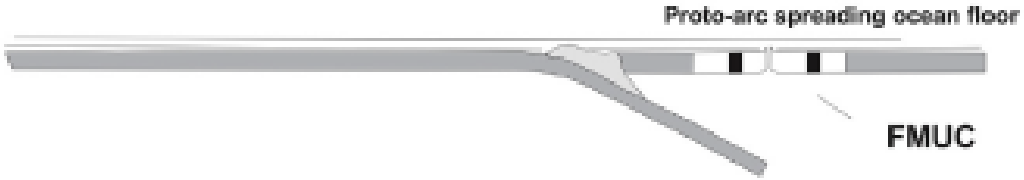
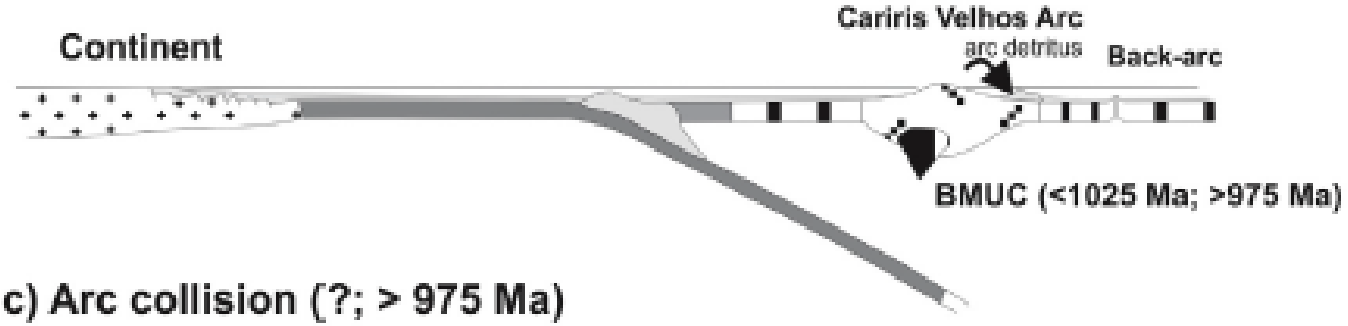


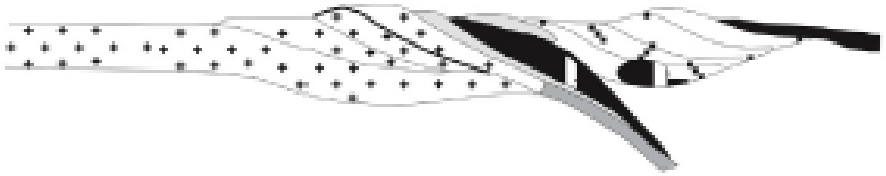
a) Proto-arc spreading (1025 Ma)

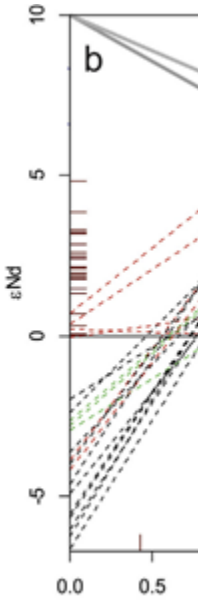


b) Establishment of mature Cariris Velhos arc (<1025 Ma - 995 Ma)

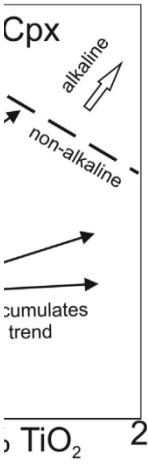


c) Arc collision (?; > 975 Ma)



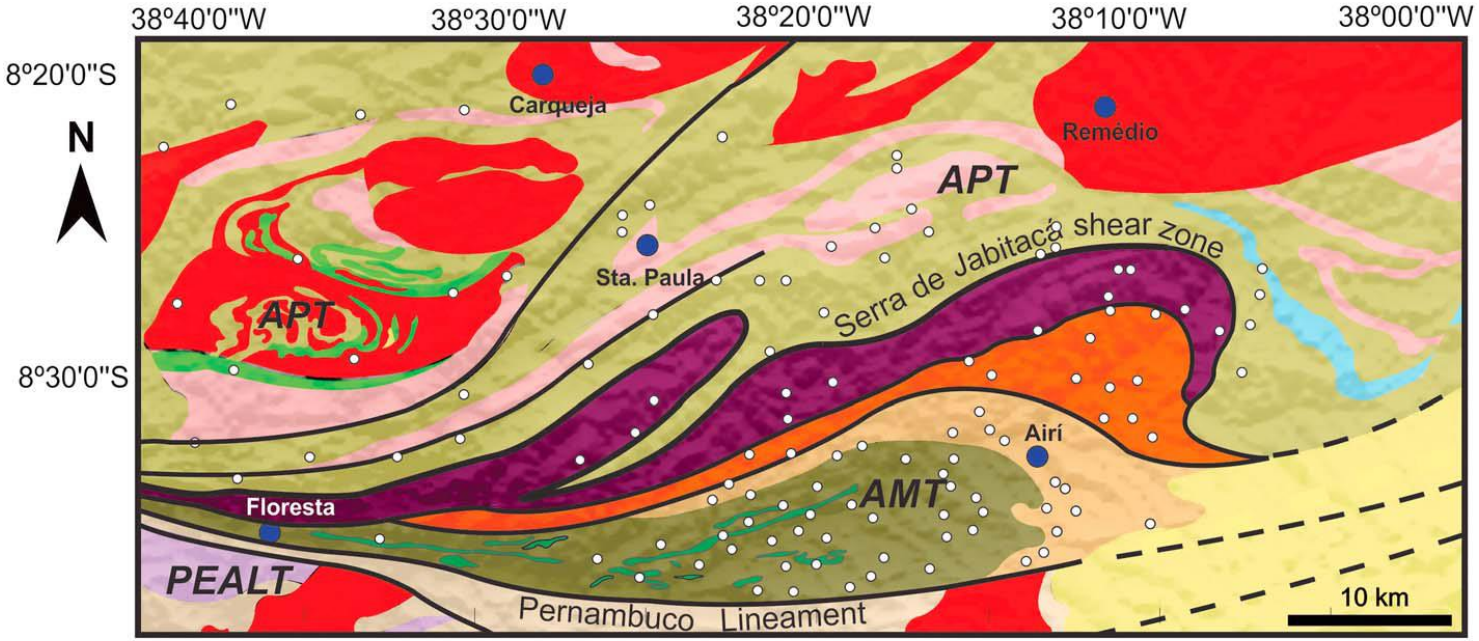


d) Post-collisional extension (< 975 Ma)



Lages and Dantas (2016)

EVIDÊNCIA #5 – CONTRASTES ISOTÓPICOS ENTRE TERRENOS



Phanerozoic - Sedimentary cover

- Sandstones and pelitic rocks (Jatobá Basin)

Neoproterozoic - Alto Pajeú and Pernambuco-Alagoas terranes (1000 - 600 Ma)

- Brasiliano-related granites
- Metagranitic, dioritic and qtz-dioritic rocks (Riacho do Forno and Recanto metagranites)
- Metagabbros, metapyroxenites and metaperidotites (Serrote das Pedras Pretas Suite)
- Bioite-muscovite paragneisses, quartzites and volcanoclastic rocks (São Caetano Complex)
- Paragneisses, biotite-schists and marbles (Cabrobró Complex)
- Orthogneisses, migmatites and aphinolites (Belém do São Francisco Complex)

Paleoproterozoic - Alto Moxotó Terrane (2100 - 1600 Ma)

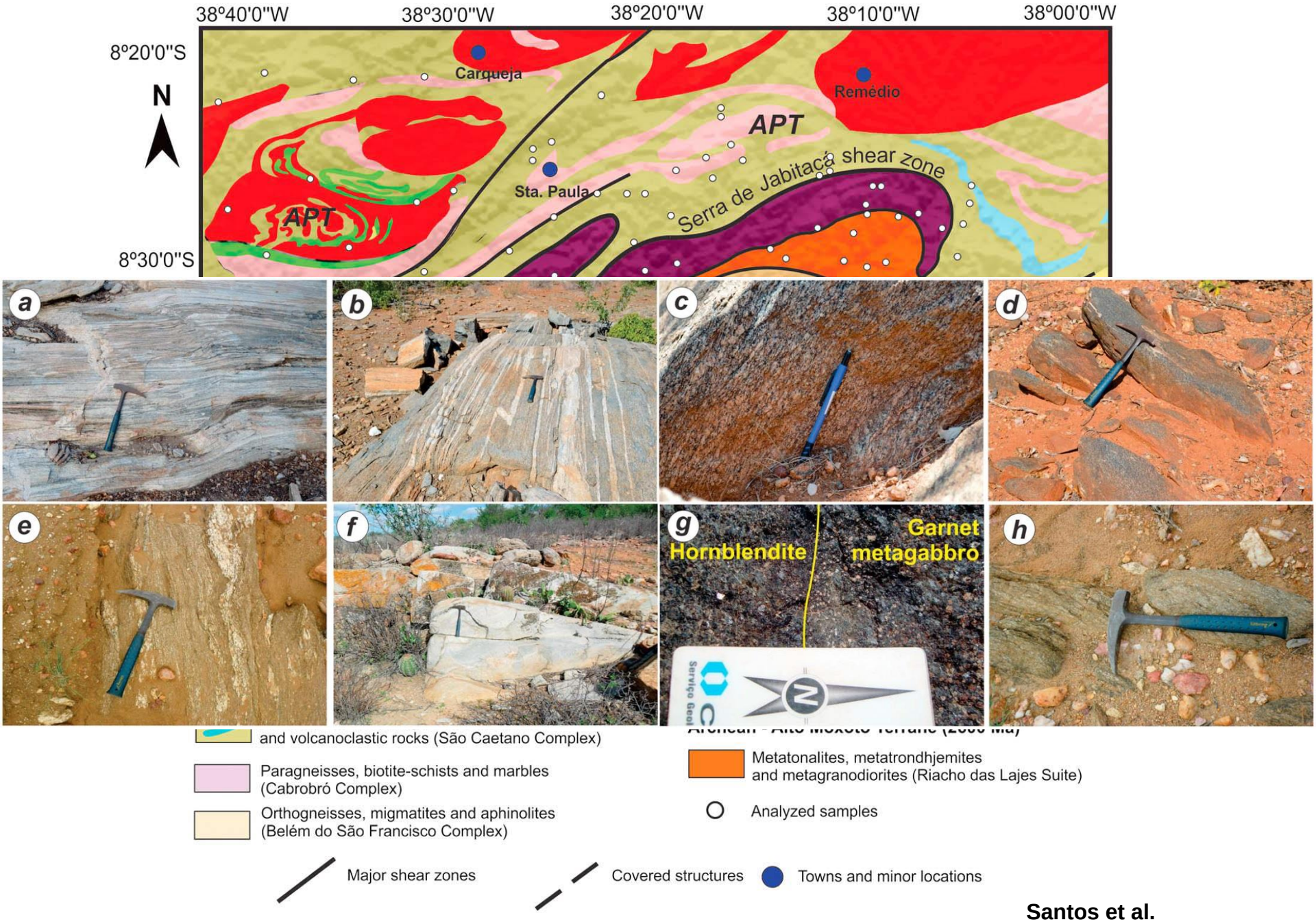
- Augen gneisses and metagranites (Riacho do Navio Suite)
- Metagabbros and metapyroxenites (Malhada Vermelha Suite)
- Garnet-sillimanite-biotie paragneisses and migmatites (Sertânia Complex)
- Metadiorites, metatonalites and metagranodiorites (Floresta Suite)

Archean - Alto Moxotó Terrane (2600 Ma)

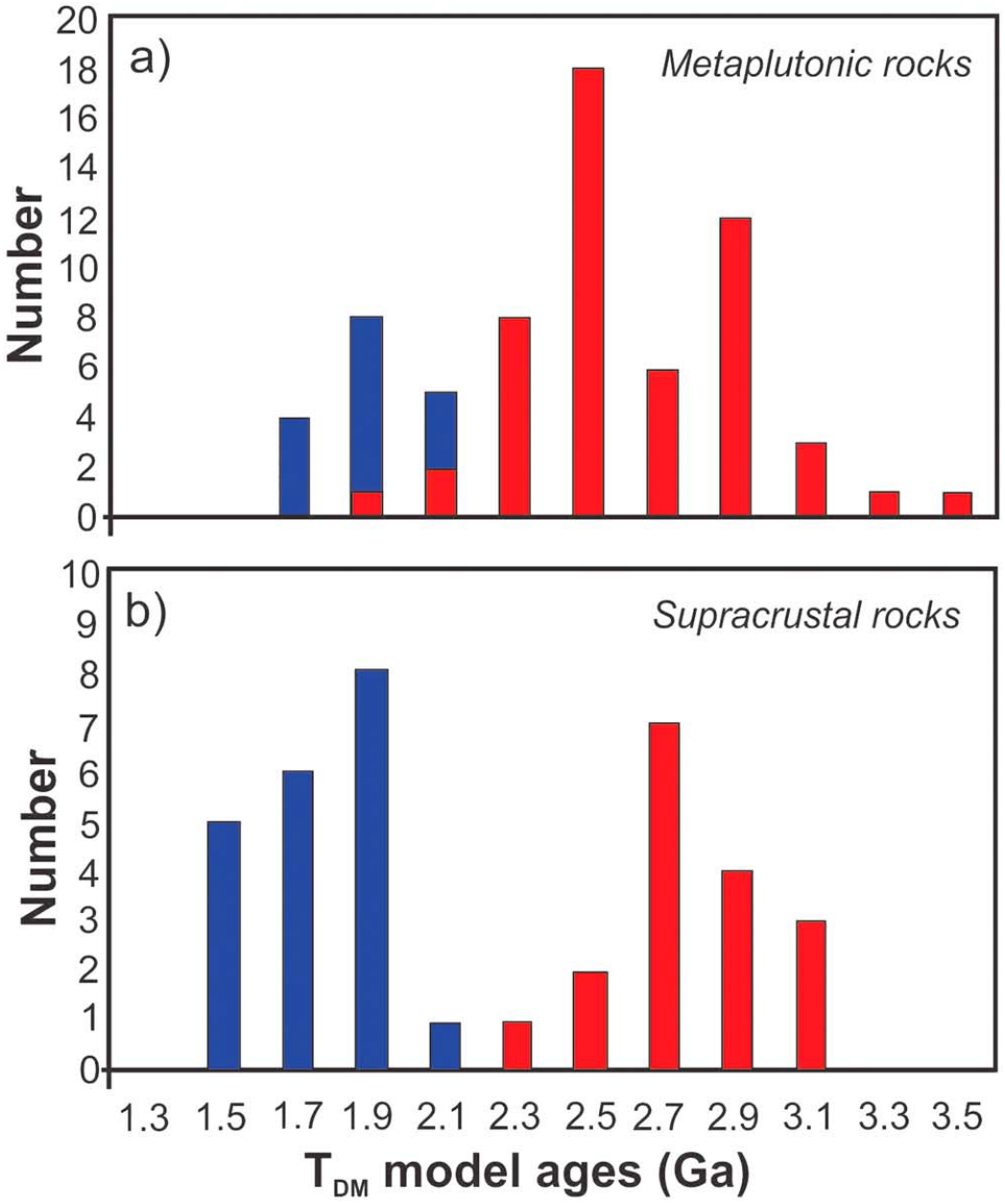
- Metatonalites, metatrondhjemites and metagranodiorites (Riacho das Lajes Suite)
- Analyzed samples

Major shear zones | Covered structures | Towns and minor locations

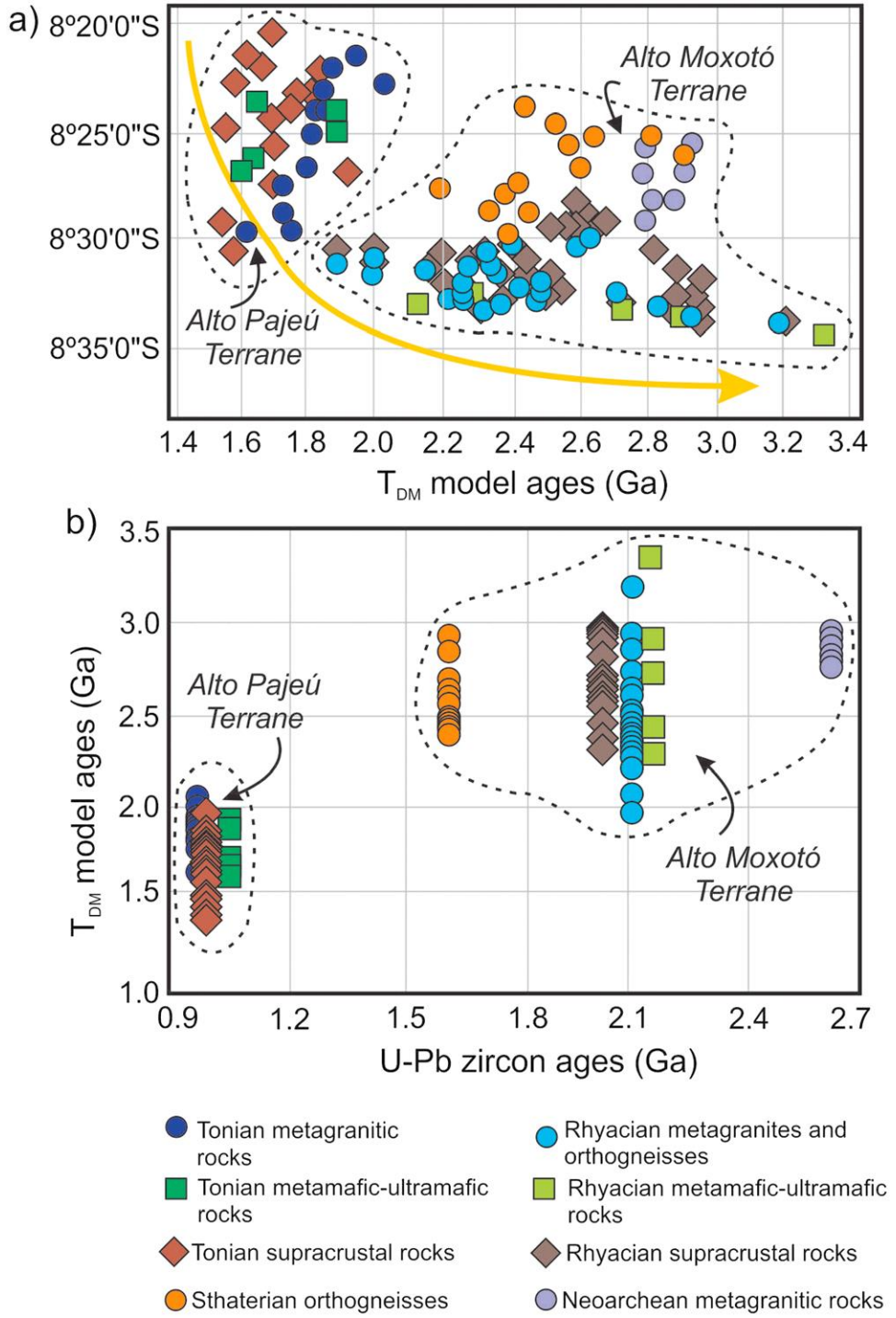
Santos et al. (2018)



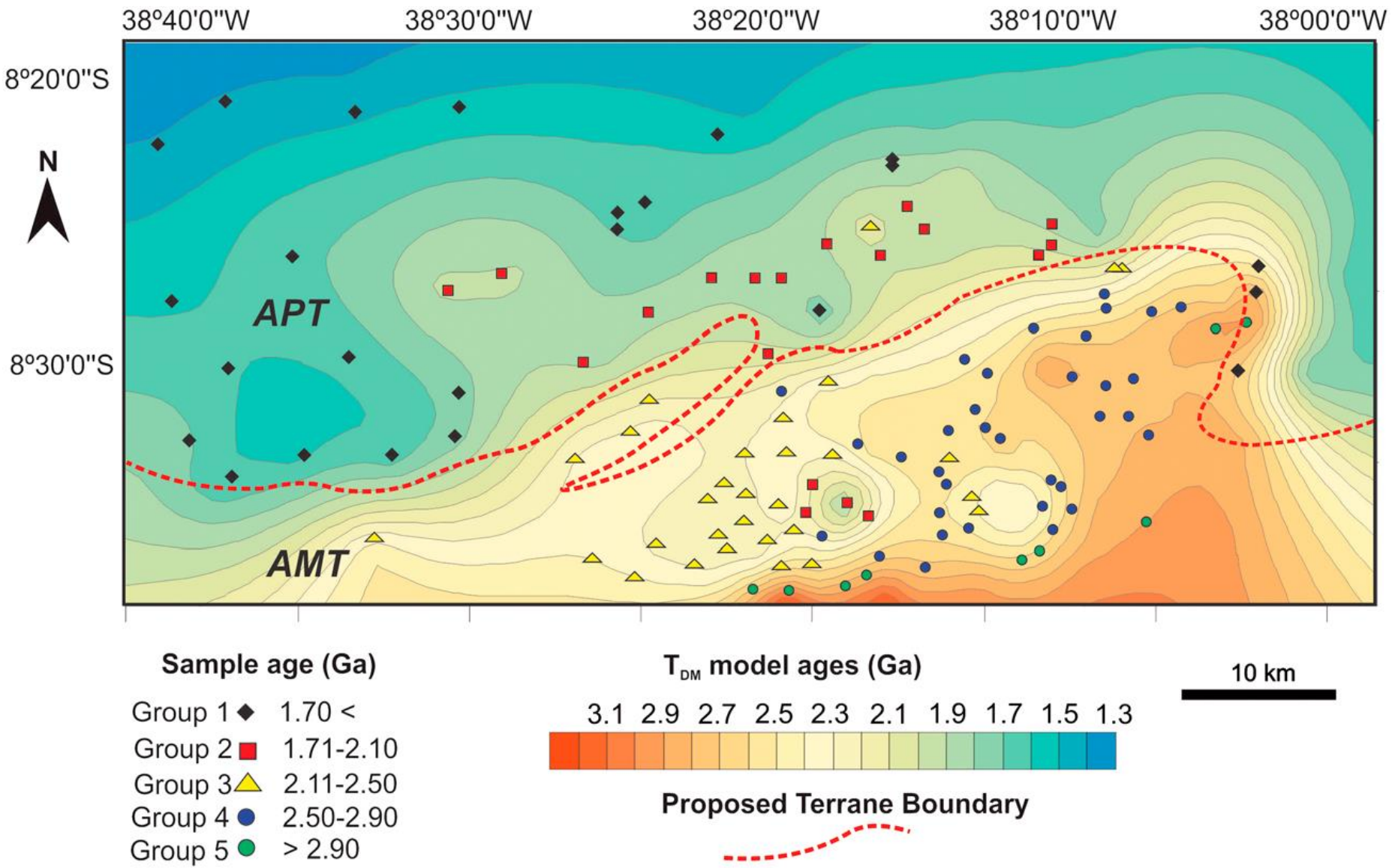
Santos et al. (2018)



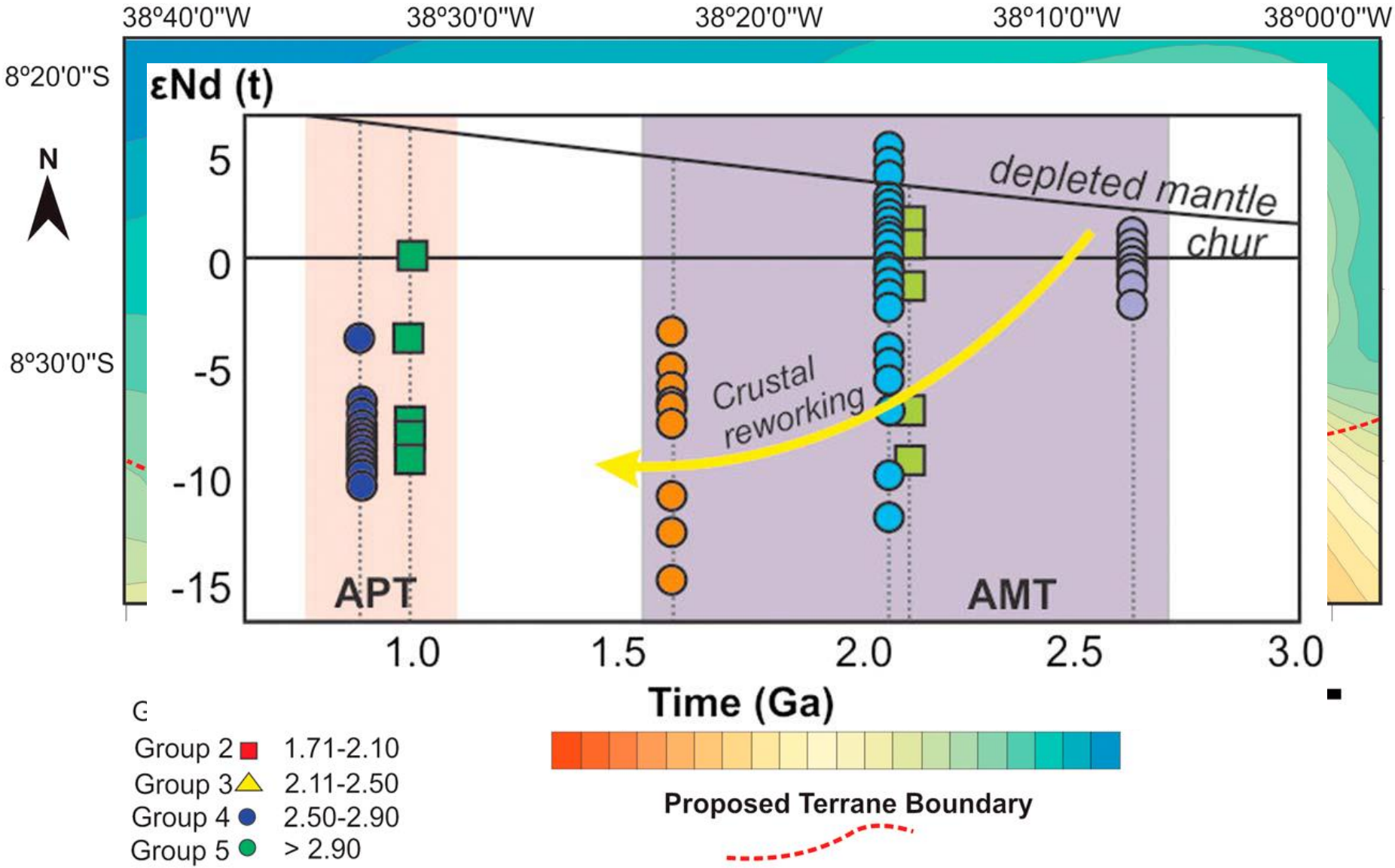
Santos et al. (2018)



Santos et al. (2018)

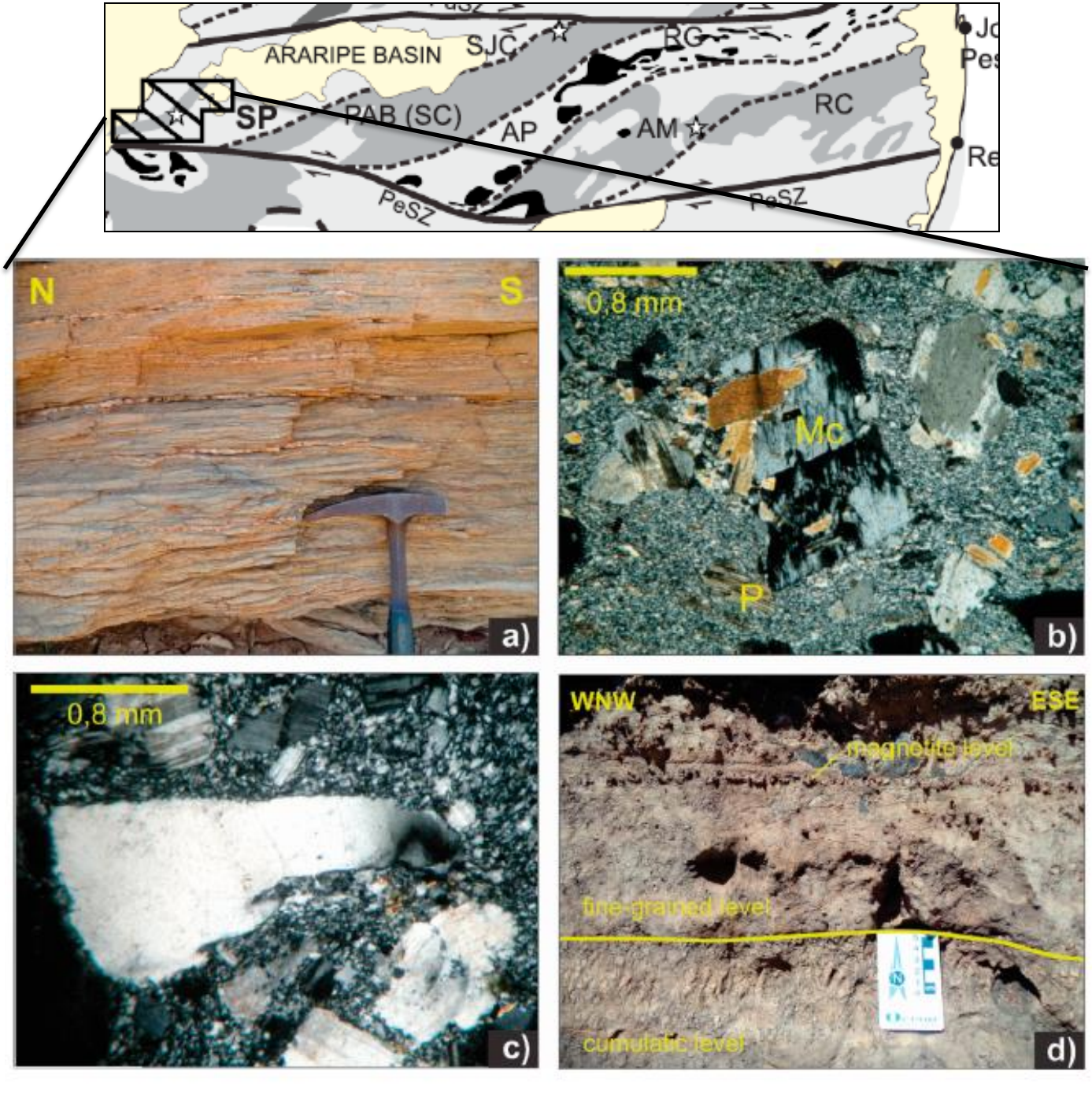


Santos et al. (2018)

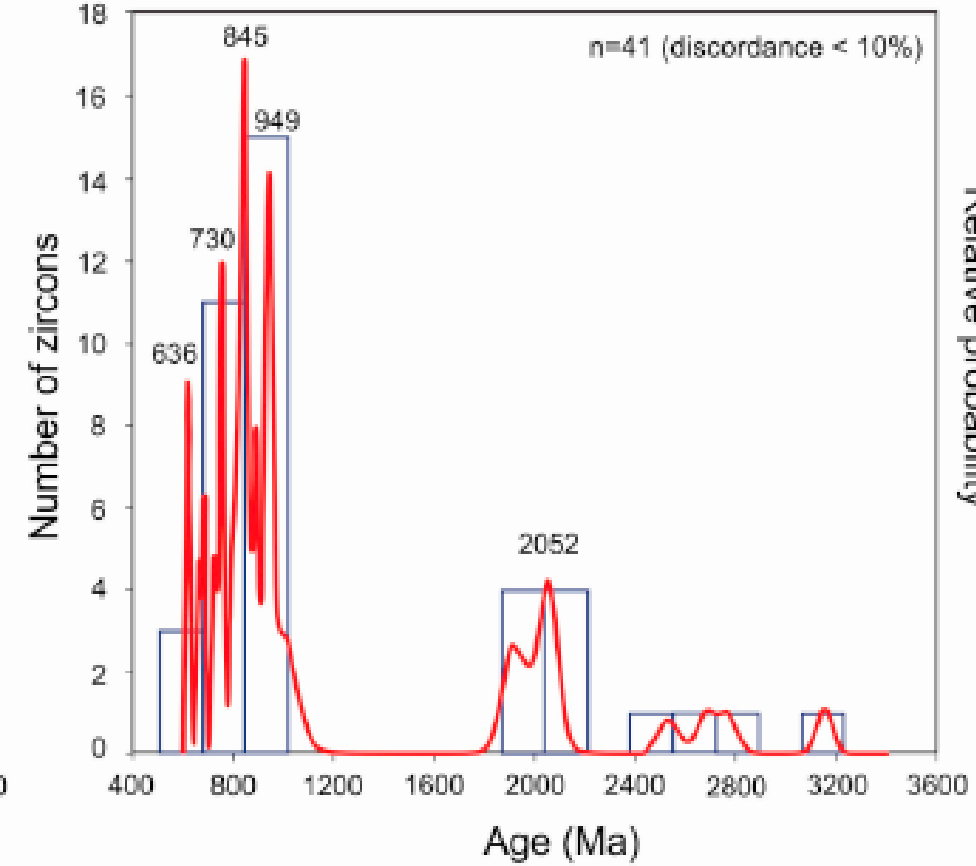


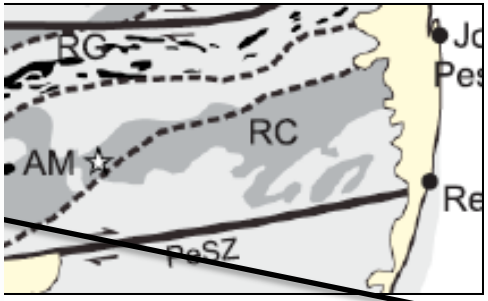
Santos et al. (2018)

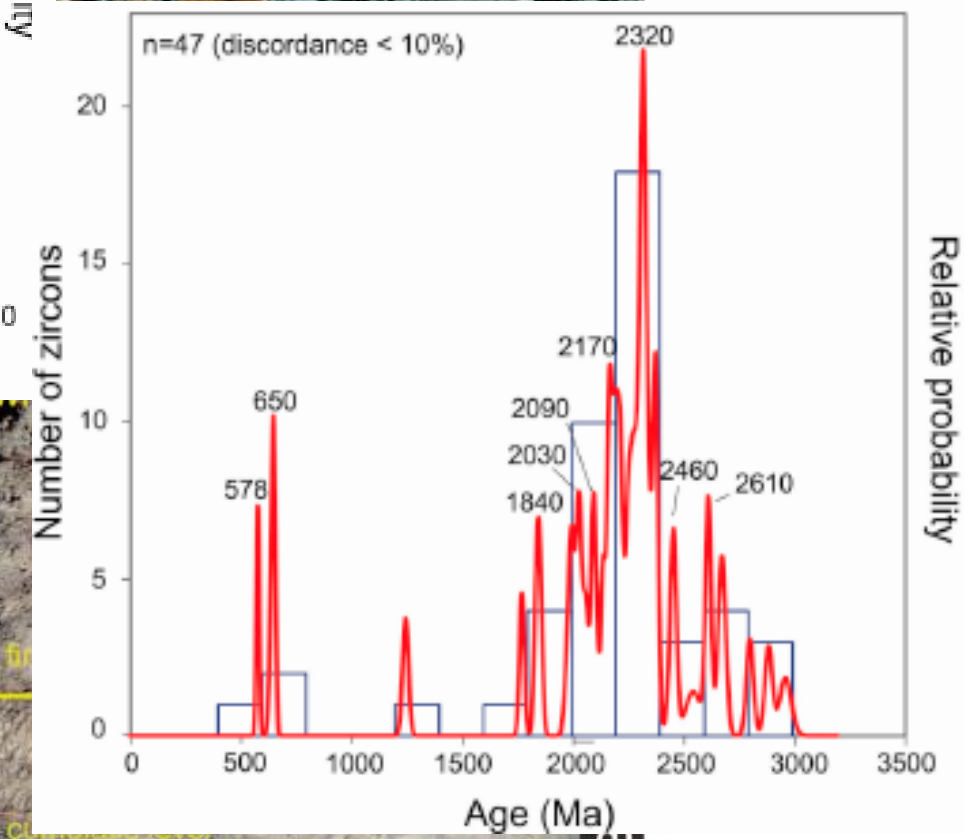
EVIDENCE #6 – SEQUENCIAS DE RETRO-ARCO

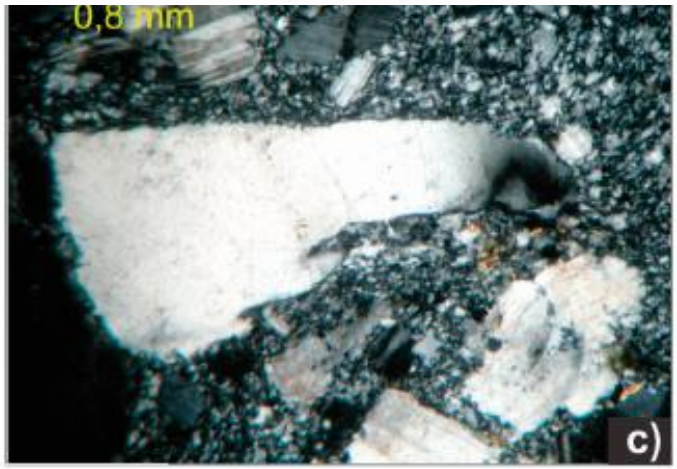


Basto et al. (2019)

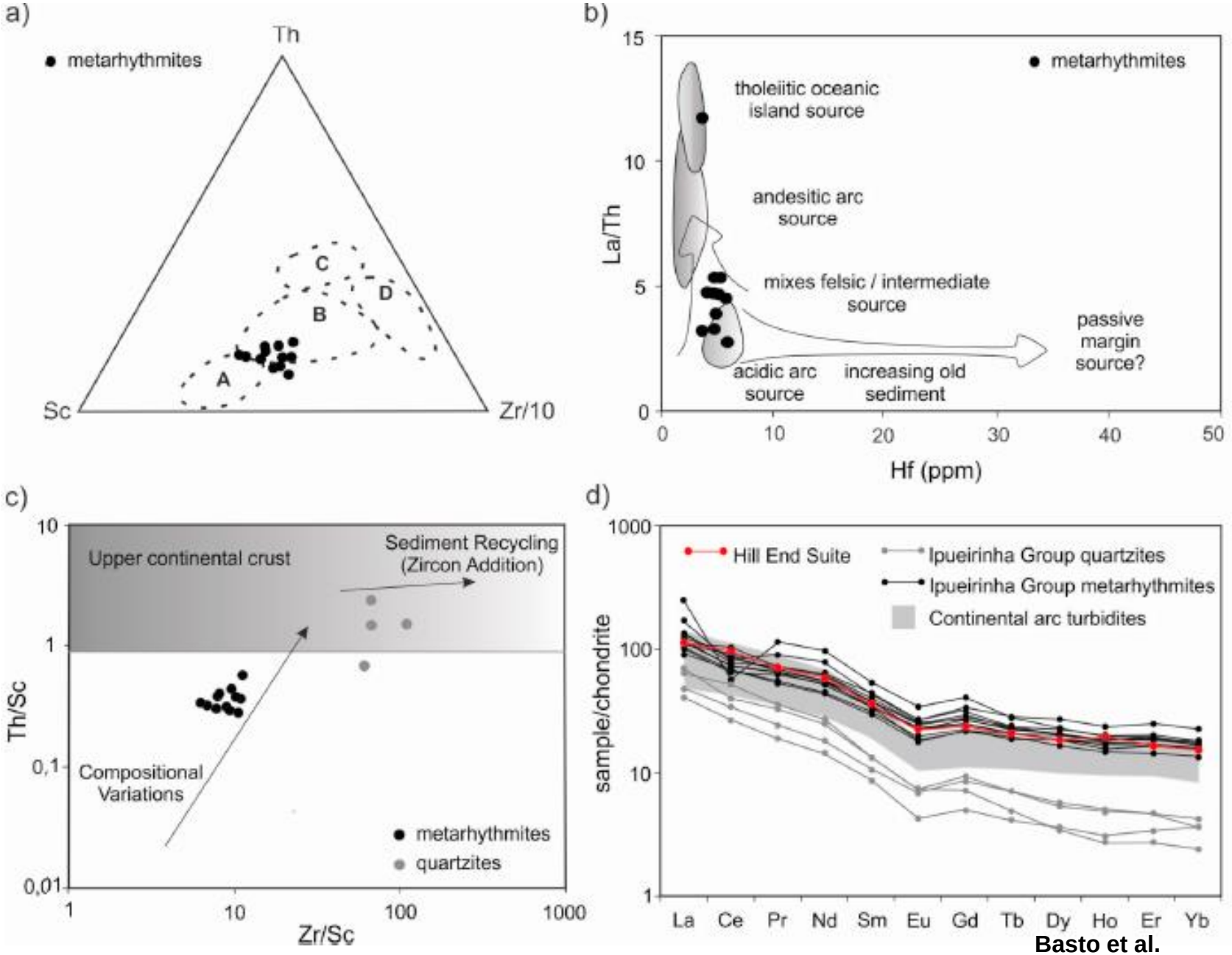








Basto et al. (2019)



Basto et al. (2019)

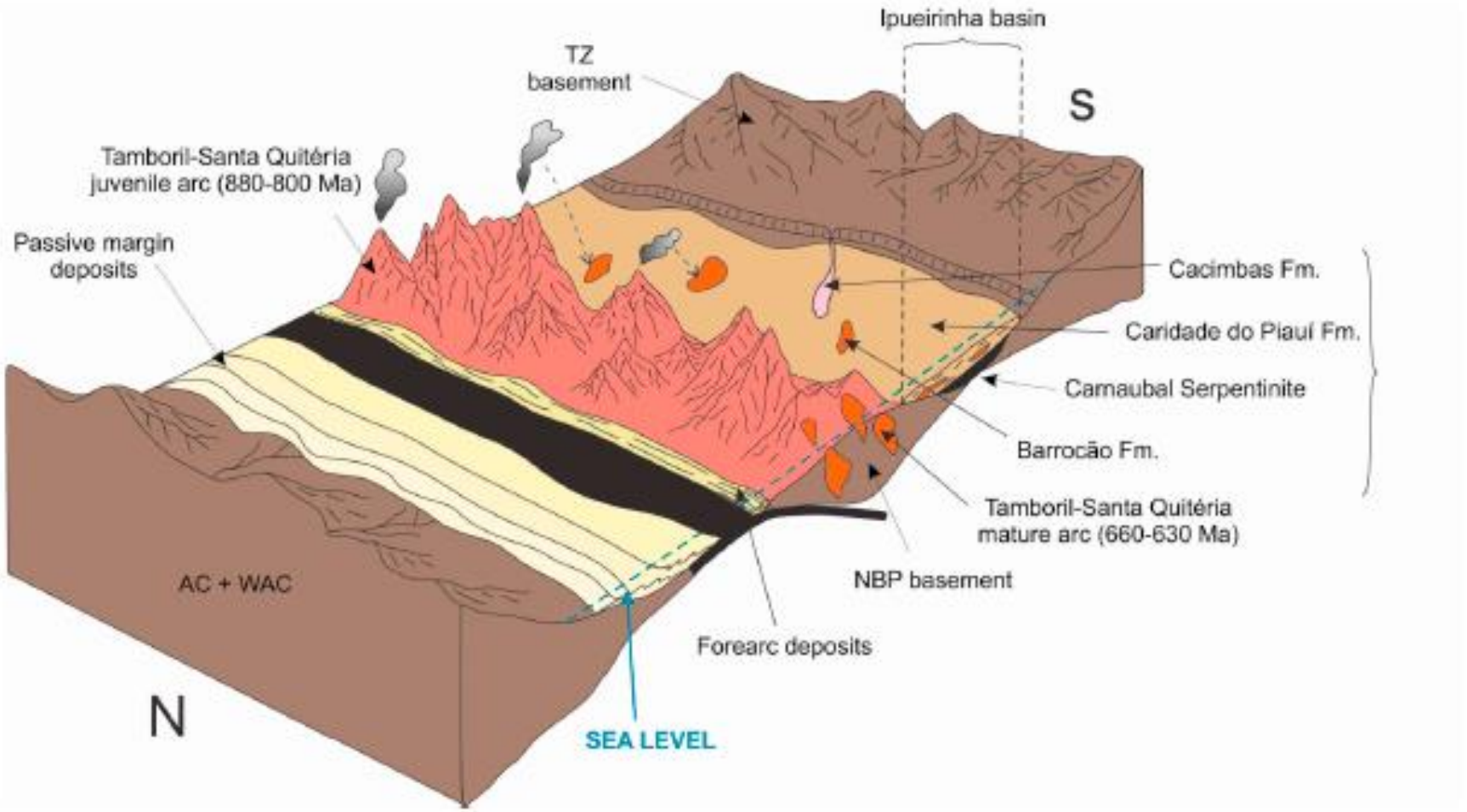
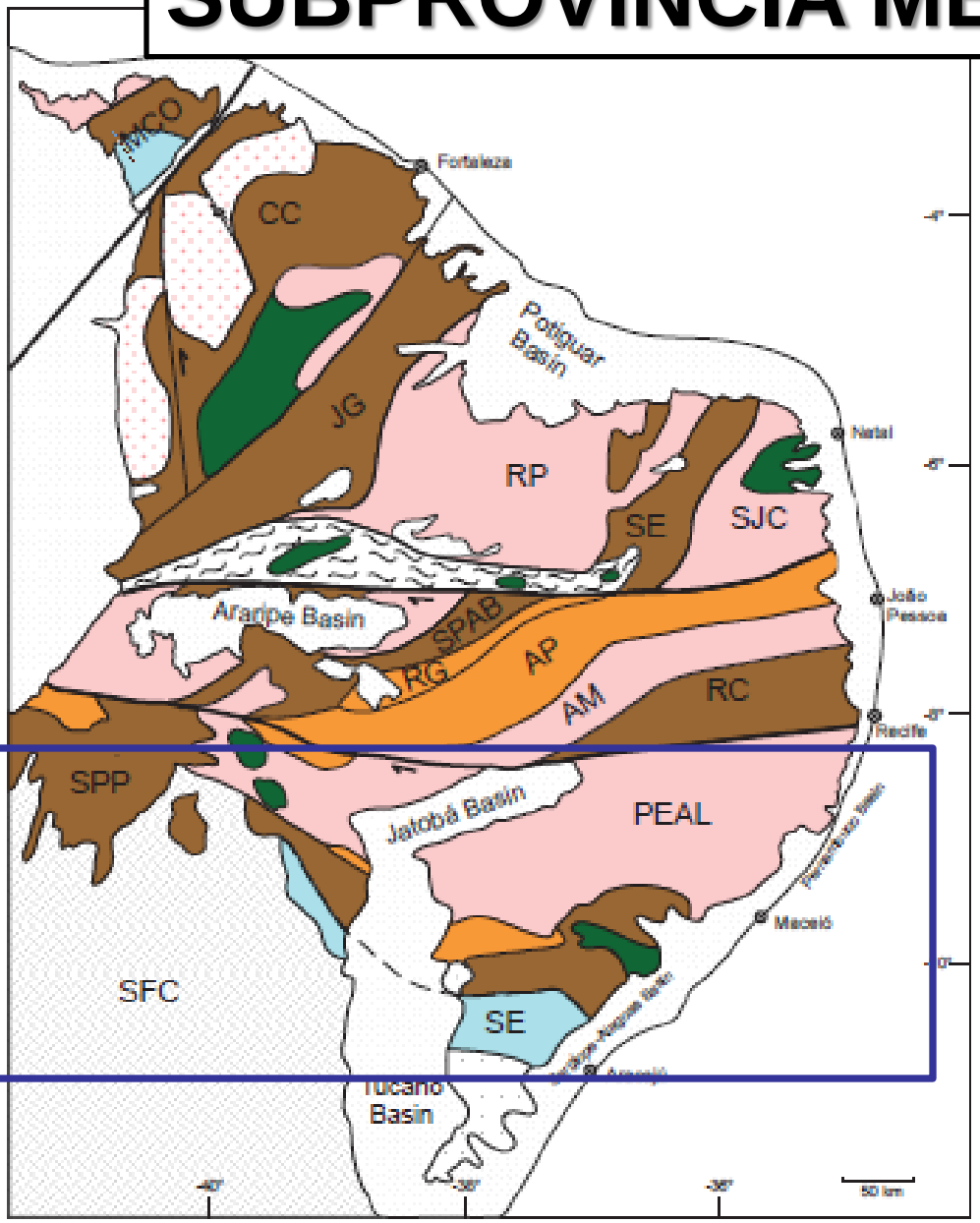


Fig. 11. Tectonic model for the Neoproterozoic Ipueirinha Group: a back-arc setting to the Tamboril-Santa Quitéria magmatic arc.

Basto et al. (2019)

SUBPROVÍNCIA MERIDIONAL



Cambrian Foreland and Molassic Deposits

Patos -Aurora Shear zone
Tectonites of different previous ages

Neoproterozoic Fold Belts:

Pelitic-Carbonatic (QPC)

Volcano - Sedimentary

Reworked Paleoproterozoic inliers

Magmatic arc

TonianTerranes and Belts

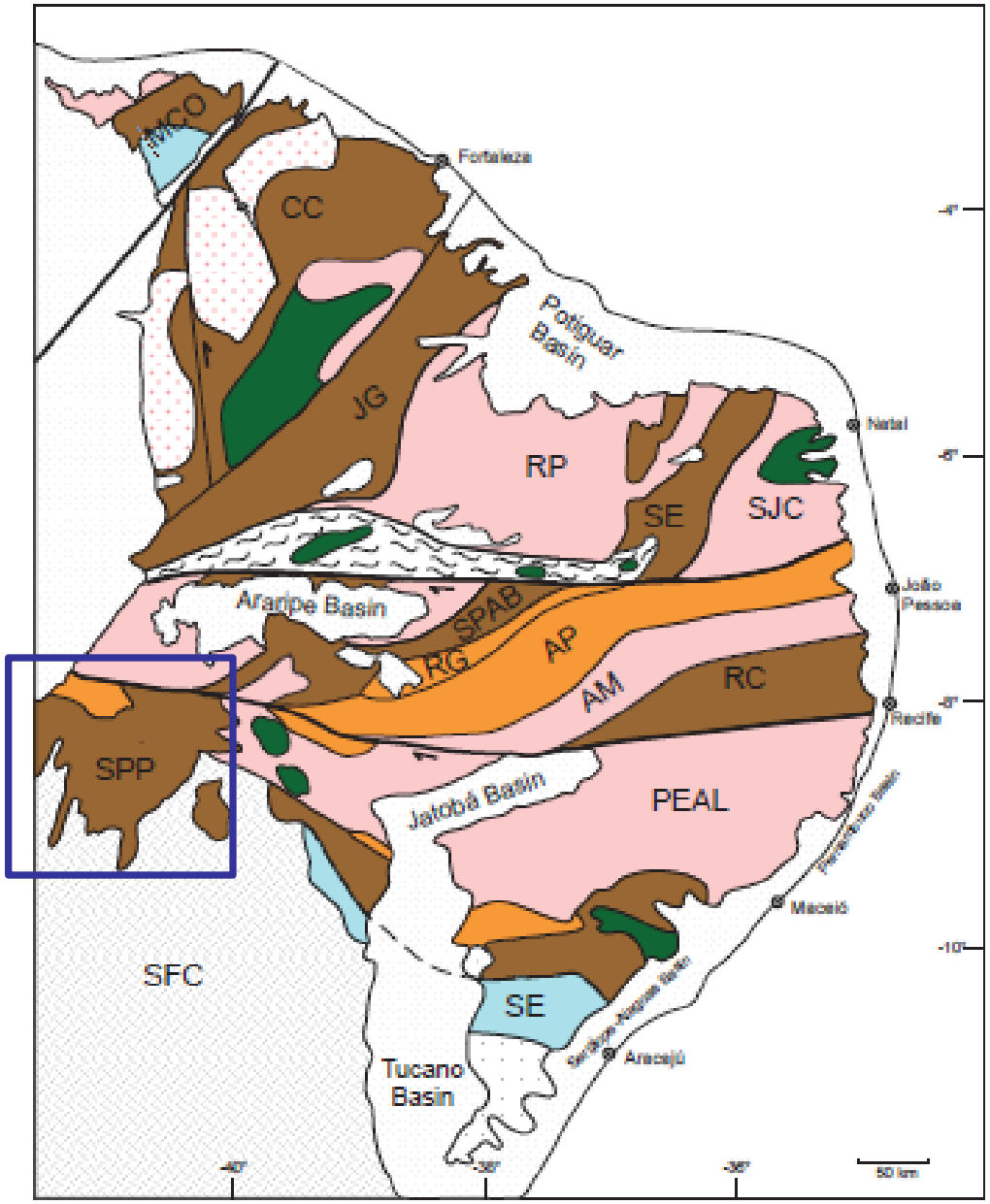
LocalArchean Nuclei

São Francisco Craton

RG- Riacho Gravatá "subterrane"
AP- Alto Pajeú Terrane
AM- Moxotó Terrane
RC- Rio Capibaribe belt
PEAL- Pernambuco-Alagoas "Massif"
SRP- Riacho do Pontal belt
SG- Sergipano belt
SFC- São Francisco craton
MCO- Medio Coreaú belt
CC- Ceará Central belts
JG- Jaraguaribeano belt
RP- Rio Piranhas "Massif"
SE- Seridó belt
SJC- São José Campestre "Massif"
SPAB-Piancó-Alto Brígida Belt

Brito Neves et al. (2014)

EVIDÊNCIA #7 – REMANESCENTES DE CROSTA OCEÂNICA



Phanerozoic

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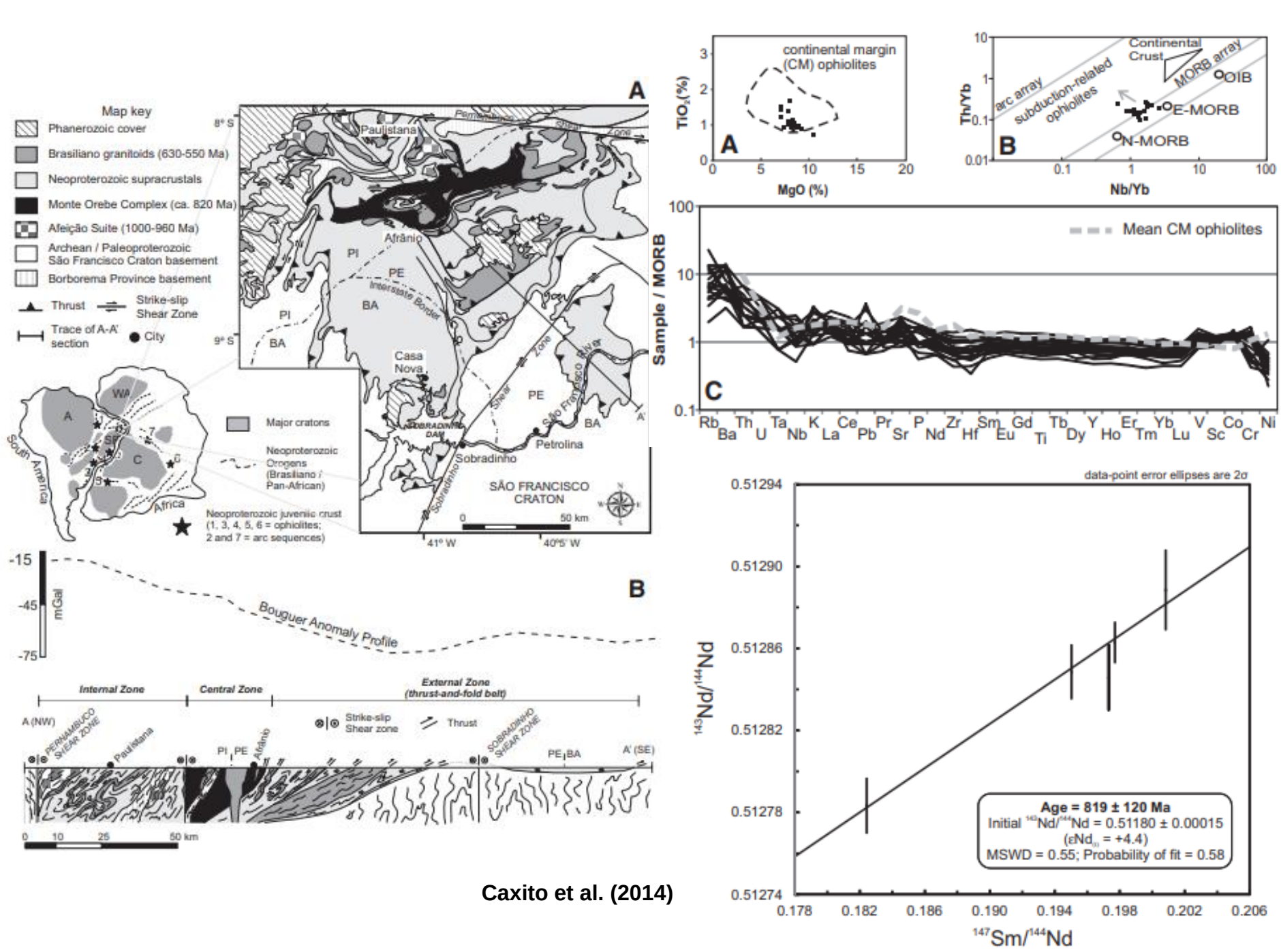
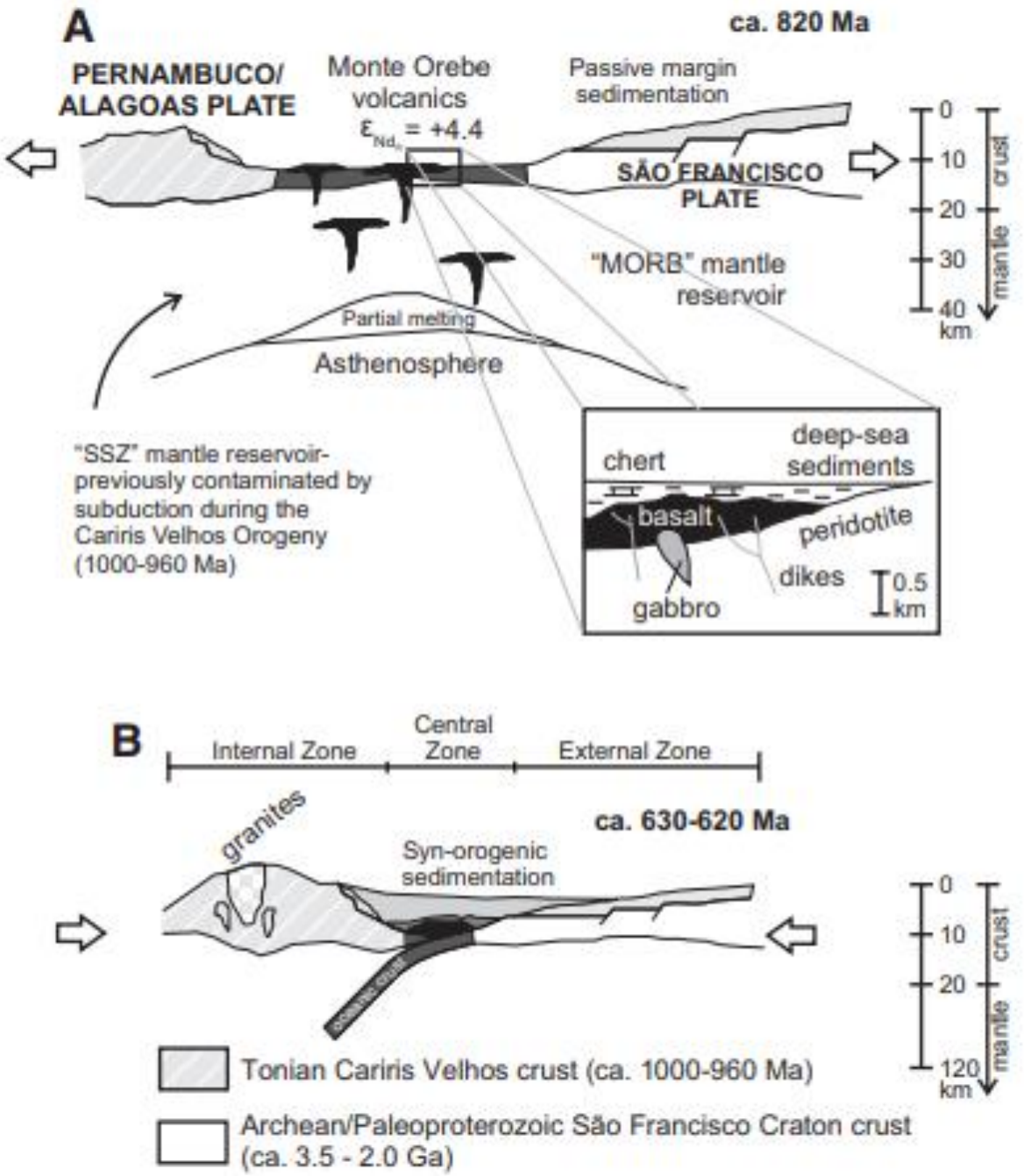
Brito Neves et al. (2014)



Caxito et al. (2014)



Caxito et al. (2014)

EVIDÊNCIA #8 – ARCOS ACRESCIDOS E COLAGENS TONIANAS-EDIACARANAS

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Série Científica

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Geol. USP, Sér. cient., São Paulo, v. 19, n. 2, p. -28, Junho 2019

Superterreno Pernambuco-Alagoas na Província Borborema: ensaio de regionalização tectônica

The Pernambuco-Alagoas Superterrane of the Borborema Province: an essay for geotectonic regionalization

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[1]Universidade de São Paulo - USP, Instituto Geociências - IGc, Rua do Lago, 562, Cidade Universitária, Butantã, CEP 05508-080, São Paulo, SP, BR (bbleybn@usp.br)
[2]Universidade Federal de Pernambuco - UFPE, Centro de Tecnologia e Geociências, Recife, PE, BR (afsf@ufpe.br)

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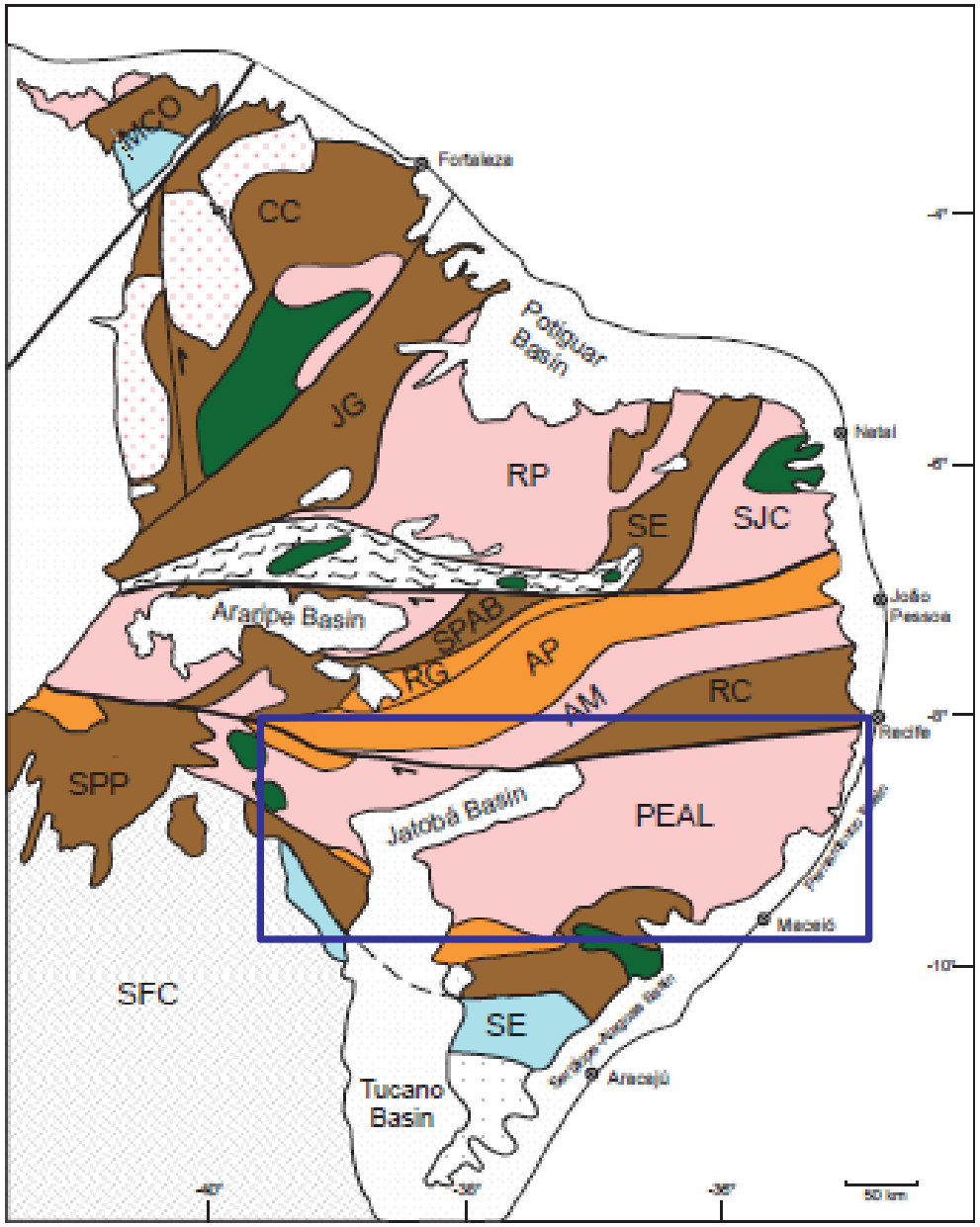

Phanerozoic

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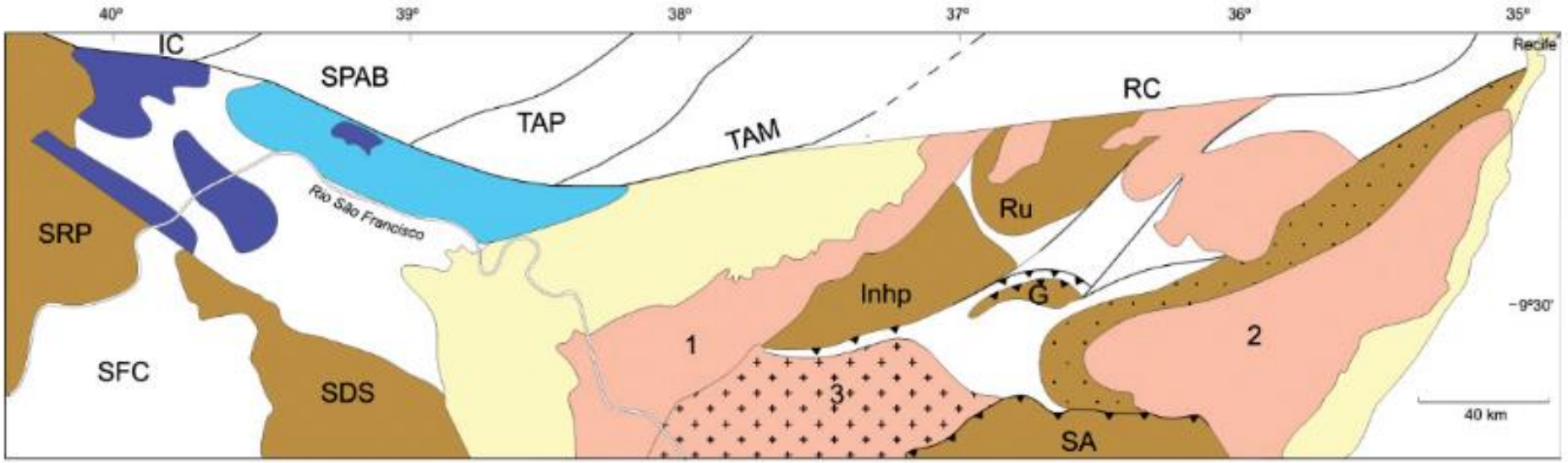
RG- Riacho Gravatá "subterrane"
AP- Alto Pajeú Terrane
AM- Moxotó Terrane
RC- Rio Capibaribe belt
PEAL- Pernambuco-Alagoas "Massif"
SRP- Riacho do Pontal belt
SG- Sergipano belt
SFC- São Francisco craton
MCO- Medio Coreaú belt
CC- Ceará Central belts
JG- Jaraguaribeano belt
RP- Rio Piranhas "Massif"
SE- Seridó belt
SJC- São José Campestre "Massif"
SPAB-Piancó-Alto Brígida Belt

Brito Neves et al. (2014)

ARQUEANO + PALEO + NEO -> RETRABALHADO



Coberturas fanerozoicas

Granitos de arco magmático (Águas Belas-Canindé) – 580 Ma

Batólitos e *stocks* graníticos
- 1 – Arcoverde-Paulo Afonso
- 2 – Ipojuca-Atalaia
- 3 – Águas Belas-Canindé

Faixas móveis neoproterozoicas
- Ru = Rio Una
- Inhp = Inhapi
- G = Garanhuns
- SA = Sul-alagoana
- SDS = Faixa Sergipana
- SRP = Faixa Riacho do Pontal

Faixa de Palmares

Terrenos tonianos

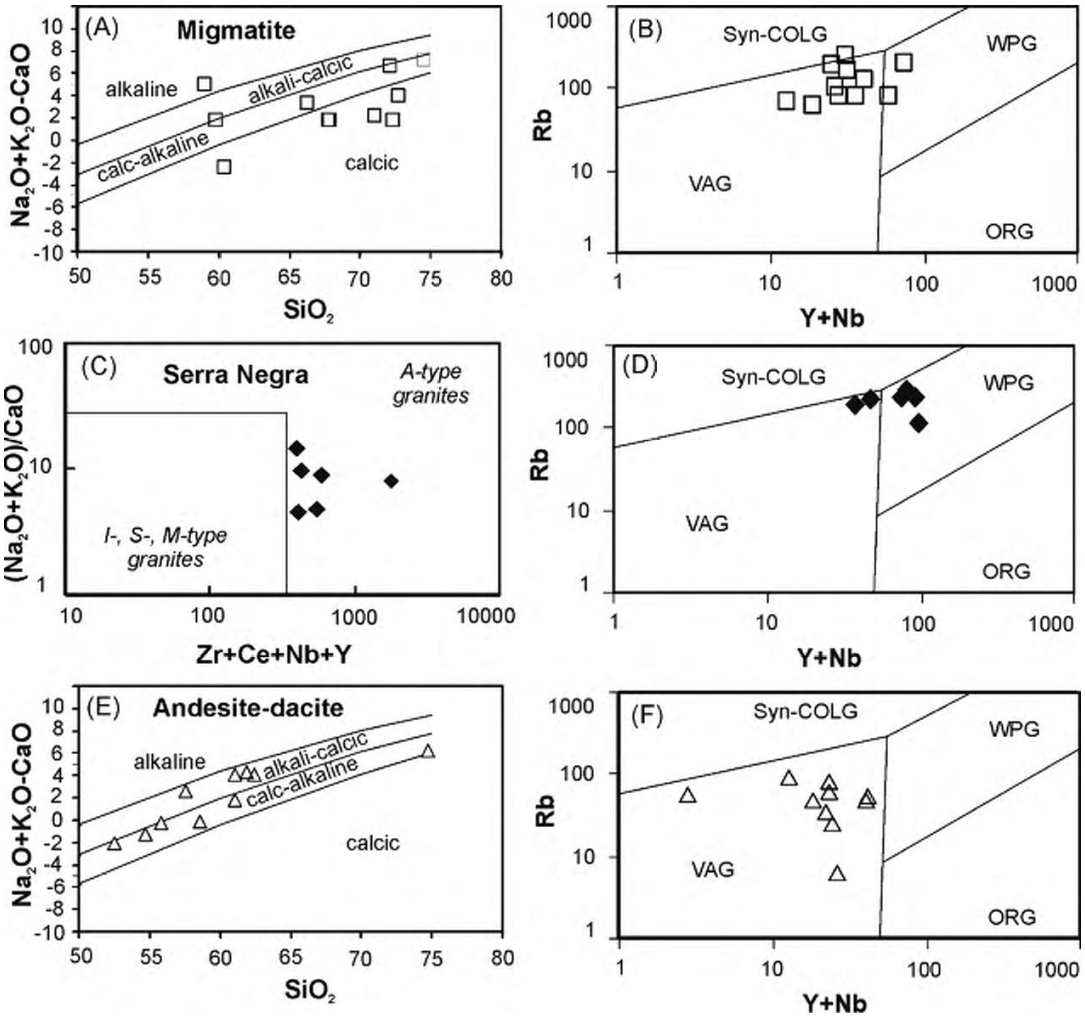
Terrenos paleoproterozoicos retrabalhados

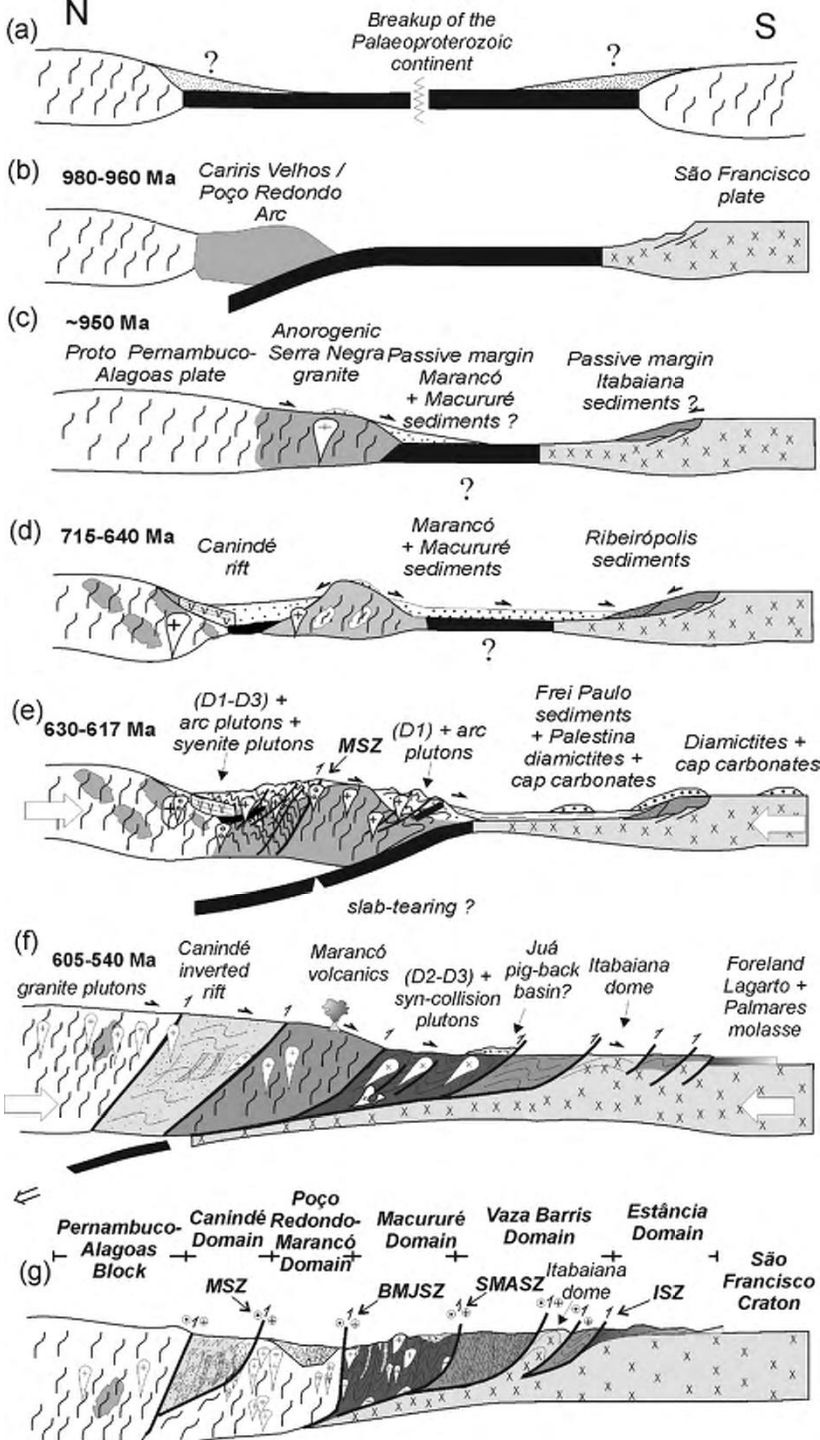
Núcleos arqueanos

IC = Terreno Icaiçara
SPAB = Sistema Piancó-Alto Brígida
TAP = Terreno Alto Pajeú
TAM = Terreno Alto Moxotó
RC = Terreno Rio Capibaribe
SFC = Cráton São Francisco

Brito Neves e Silva Filho (2019)

Faixa Sergipana





Oliveira et al. (2010)

PEAL e Faixa Sergipana

Contents lists available at ScienceDirect

Journal of South American Earth Sciences

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Geochemistry, U—Pb geochronology, Sm—Nd and O isotopes of ca. 50 Ma long Ediacaran High-K Syn-Collisional Magmatism in the Pernambuco Alagoas Domain, Borborema Province, NE Brazil

Adejardo Francisco da Silva Filho [a, *], Ignez de Pinho Guimarães [a], Lucilene Santos [a], Richard Armstrong [b], William Randall Van Schmus [c]

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Two stage mantle-derived granitic rocks and the onset of the Brasiliano orogeny: Evidence from Sr, Nd, and O isotopes

Thyego R. Silva *, Valderez P. Ferreira, Mariucha Maria C. Lima, Alcides N. Sial

NEG-LABISE, Department of Geology, Federal University of Pernambuco, Recife, PE 50740-550, Brazil

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Geochemical and detrital zircon geochronological investigation of the metavolcanosedimentary Araticum complex, sergipano fold belt: Implications for the evolution of the Borborema Province, NE Brazil

Haroldo Monteiro Lima[a,*], Márcio Martins Pimentel[a], Reinhardt A. Fuck[a], Lauro Cézar Montefalco de Lira Santos[b], Elton Luiz Dantas[a]

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Isotopic and geochemical characterization of the metavolcano-sedimentary rocks of the Jirau do Ponciano Dome: A structural window to a Paleoproterozoic continental arc root within the Southern Borborema Province, Northeast Brazil

Haroldo M. Lima[a,*], Márcio M. Pimentel[b,1], Lauro Cézar M. de Lira Santos[c], Elton L. Dantas[b]

Age, composition, and source of continental arc- and syn-collision granites of the Neoproterozoic Sergipano Belt, Southern Borborema Province, Brazil

Elson P. Oliveira [a, *], Juliana F. Bueno [a], Neal J. McNaughton [b], Adejardo F. Silva Filho [c], Rosemery S. Nascimento [d], José P. Donatti-Filho [a]

Special Session, "A tribute to Edilton Santos, a leader in Precambrian Geology in Northeastern Brazil", edited by A.N. Sial and V.P. Ferreira

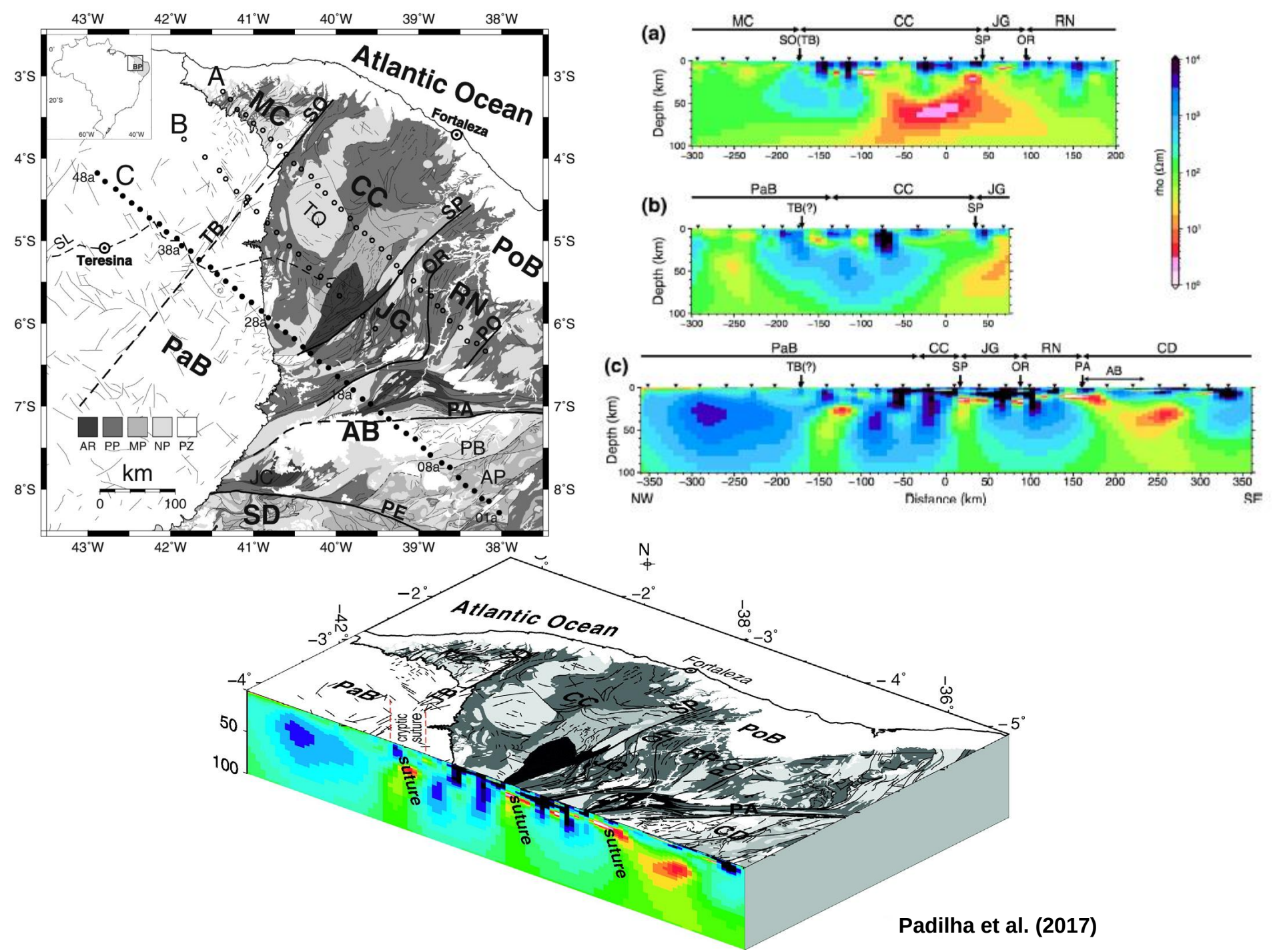
DOI: 10.1590/2317-4889202020190105

BJGEO Brazilian Journal of Geology

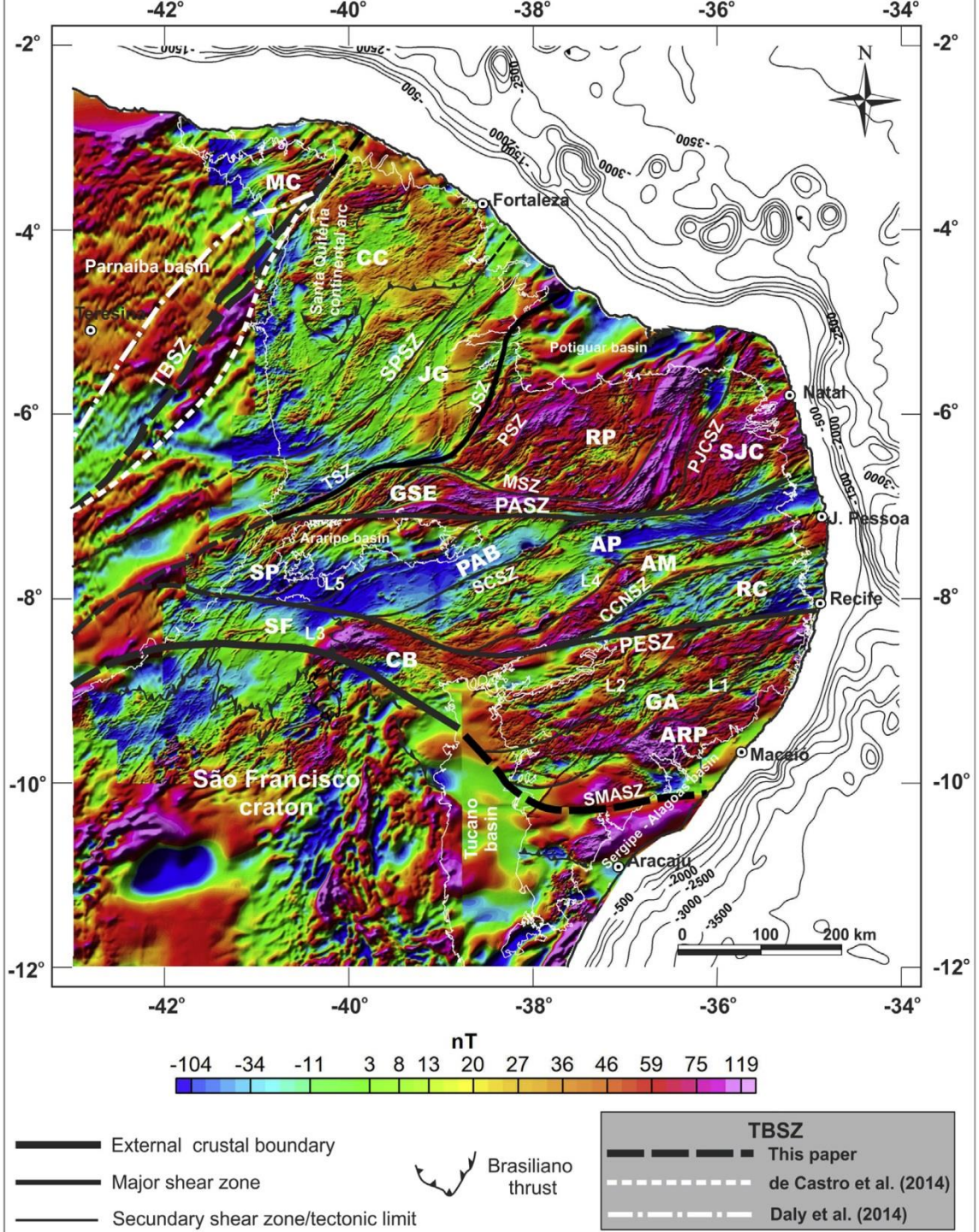
Age, composition, and source of the Macururé Mafic Suite, Southern Borborema Province, Brazil

Fábio dos Santos Pereira[1]*, Maria de Lourdes da Silva Rosa[1], Herbet Conceição[1], Anelise Losangela Bertotti[2]

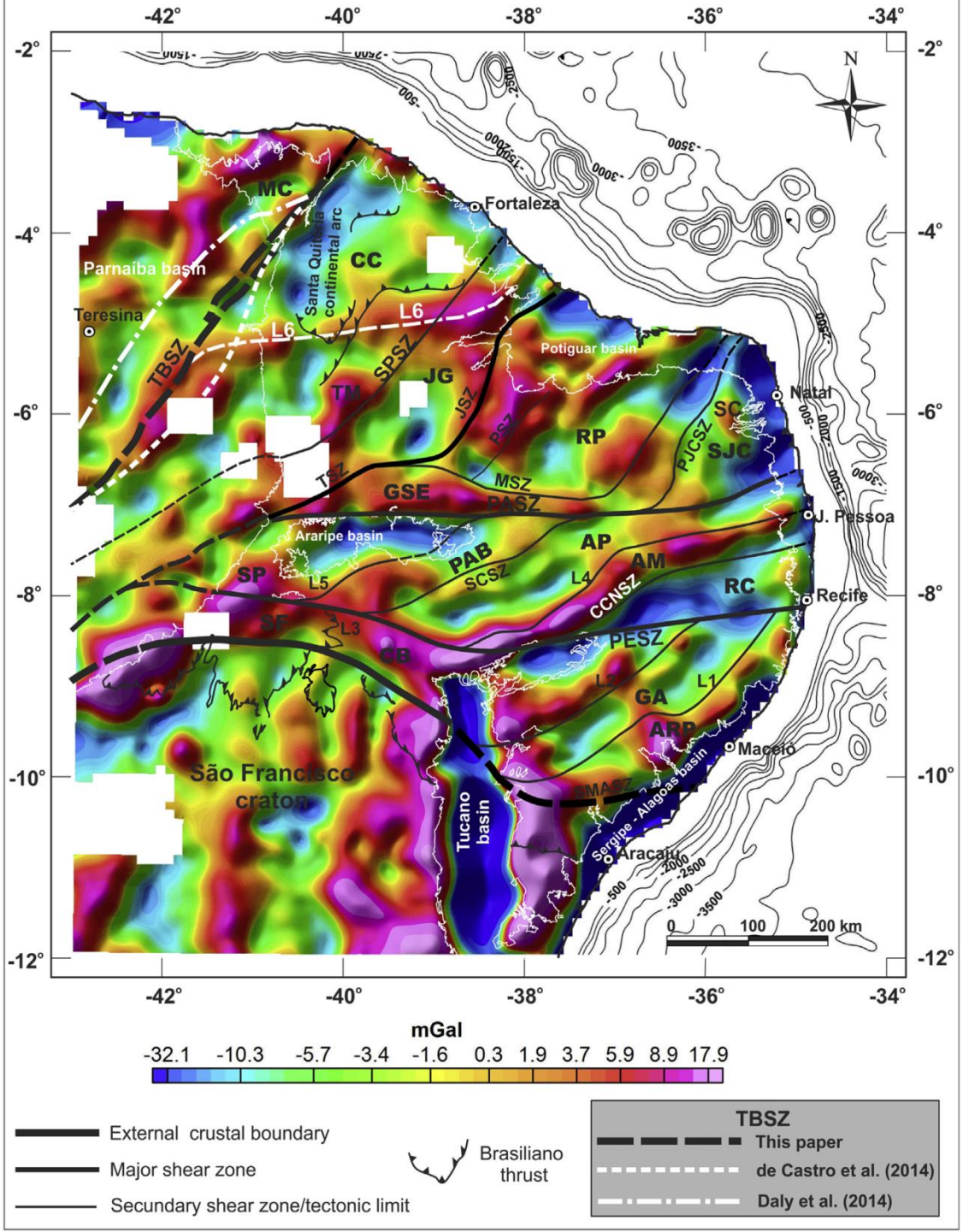
EVIDENCE #9 – GEOFÍSICA



Padilha et al. (2017)



Oliveira and Medeiros (2018)



Oliveira and Medeiros (2018)

Journal of South American Earth Sciences xxx (2014) 1–15

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Deep seismic refraction experiment in northeast Brazil: New constraints for Borborema province evolution

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Tectonophysics

journal homepage: www.elsevier.com/locate/tecto

Curie surface of Borborema Province, Brazil

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[c] Istanbul University, Engineering Faculty, Department of Geophysical Engineering, Avcılar, 34320 Istanbul, Turkey

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BJGEO
Brazilian Journal of Geology

Toward an integrated model of geological evolution for NE Brazil–NW Africa: The Borborema Province and its connections to the Trans-Saharan (Benino-Nigerian and Tuareg shields) and Central African orogens

Fabrício de Andrade Caxito[1]*, Lauro Cézar Montefalco de Lira Santos[2], Carlos Eduardo Ganade[3], Abderrahmane Bendaoud[4], El-Hocine Fettous[4], Merlain Houketchang Bouyo[5]

Abstract

Both the Borborema Province of NE Brazil and the geological provinces of NW Africa (the Trans-Saharan Orogen consisted of the Tuareg and Benino-Nigerian shields and the Central African Orogen of Cameroon, Chad, and Central African Republic) are complex geological regions with superposition of distinct deformational, metamorphic and magmatic events and final structural configuration during the Brasiliano/Pan-African Orogeny (ca. 625–510 Ma). These provinces represent the site of major mountain building processes in the Ediacaran/Cambrian transition that culminated in the amalgamation of West Gondwana after the collision of the West African-São Luís, São Francisco-Congo, and Saharan paleocontinents. In the last years, discovery and characterization of key tectonic units such as ophiolites, eclogites, HP/UHP rocks, and both oceanic and continental magmatic arcs are helping to clarify these processes and propose tectonic models for the geological evolution of NE Brazil–NW Africa. Connections of the marginal belts that frame these provinces, bordering the eastern margin of the West African–São Luís Craton (Médio Coreaú–Dahomeyides–Gourma–West Tuareg Shield) and the northern margin of the São Francisco–Congo Craton (Rio Preto–Riacho do Pontal–Sergipano–Yaoundé–Central African) are progressively better constrained, while correlations within the interior, highly reworked and sectioned portions of both the Borborema Province, the Benino–Nigerian Shield, the Central and East Tuareg Shield, Western Cameroon, and Adamawa-Yadé domains are more complicated and demand further investigation. Some of the questions of prime importance in this context are the continuation or not of the 1000–920 Ma Cariris Velhos Belt of NE Brazil into NW Africa, and if the basement-dominated North Borborema/Benino-Nigerian (NOBO-BENI) and Alto Pajeú-Alto Moxotó-Rio Capibaribe-Pernambuco-Alagoas/Adamawa-Yade (APAMCAPAY) domains could represent major decratonized blocks (such as LATEA in the Central Tuareg Shield), perhaps developed due to hyperextension and detachment of a Greater São Francisco-Congo paleocontinent northern margin. In this case, the Goiás-Pharusian and Transnordestino-Central African oceanic realms along with restricted internal oceans such as the hypothetical Piancó-Alto Brígida/Western Cameroon (PAB-WECA) Seaway probably separated these ancient paleocontinental blocks during the Neoproterozoic. The development of subduction zones and the docking of Neoproterozoic juvenile terranes welded the hyperextended Archean/Paleoproterozoic lithospheric fragments together and they became squeezed and reworked in between the major cratonic landmasses during the Brasiliano/Pan-African Orogeny. The quest for the sites of ancient oceans and continents that once composed NE Brazil and NW Africa goes on and tentative scenarios will surely benefit from novel geological, isotopic, and geochronological data put forward in the near future.

KEYWORDS: Borborema Province; West Gondwana; Neoproterozoic; Transaharan; Brasiliano/Pan-African.

L.C.M.L. Santos et al. / Geonomos, 22(2), 51-63, 2014
www.igc.ufmg.br/geonomos

ANÁLISE TECTÔNICA DE TERRENOS: METODOLOGIA, APLICAÇÃO EM CINTURÕES OROGÊNICOS E EXEMPLO DAS PROVÍNCIAS TOCANTINS E BORBOREMA, BRASIL.

Lauro Cézar Montefalco de Lira Santos[1,2], Reinhardt A. Fuck[1], Edilton José dos Santos[3], Elton Luiz Dantas[1]

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Terræ Didática

ARTIGO

Terrenos Tectonoestratigráficos e/ou "Maciços". Evolução do conceito e aplicação na Zona Transversal da Província Borborema

Tectonic-stratigraphic terranes and/or "Massifs". Evolution of the concept and use for the Transversal Zone of the Borborema Province

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Compressional intracontinental orogens: Ancient and modern perspectives

Tom Raimondo [a, b], Martin Hand [b], William J. Collins [c]

Terra Nova

doi: 10.1111/ter.12149

The role of intracontinental deformation in supercontinent assembly: insights from the Ribeira Belt, Southeastern Brazil (Neoproterozoic West Gondwana)

Vinícius T. Meira,[1] Antonio García-Casco,[2,3] Caetano Juliani,[4] Renato P. Almeida[4] and Johann Hans D. Schorscher[5]

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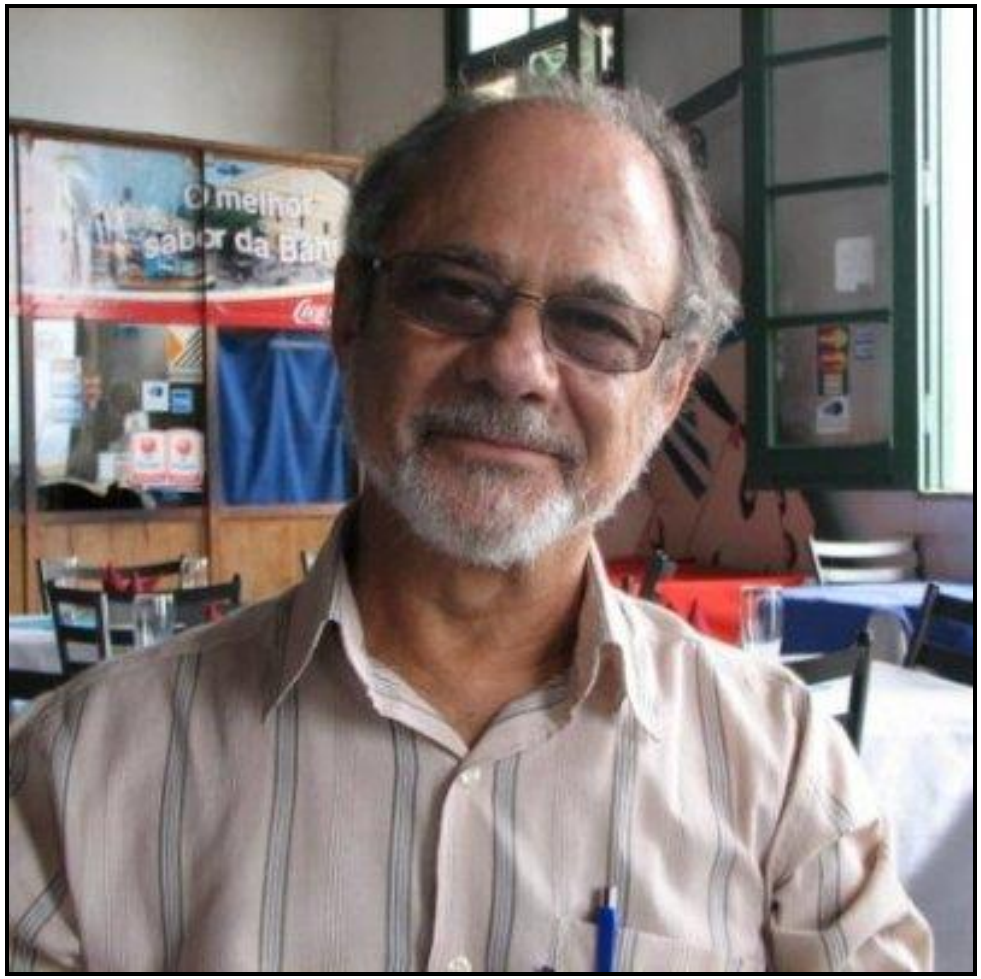
ISSN: 1342-937X

GR Gondwana Research

Heat-producing Elements-enriched Continental Mantle Lithosphere and Proterozoic Intracontinental Orogens: Insights from Brasiliano/Pan-African Belts

Sérgio Pacheco Neves and Gorki Mariano

Dedicado a memória de Edilton J. Santos (1941-2018)



Science is nothing but perception (Platão)

Obrigado pela atenção e oportunidade!