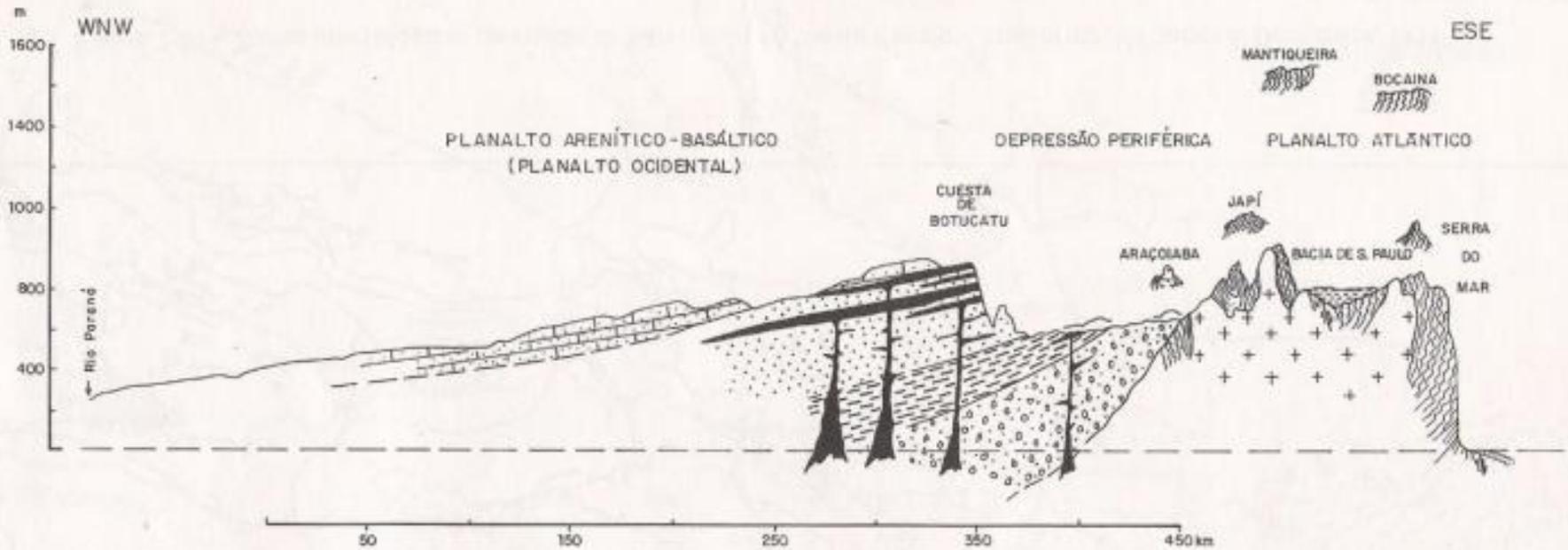


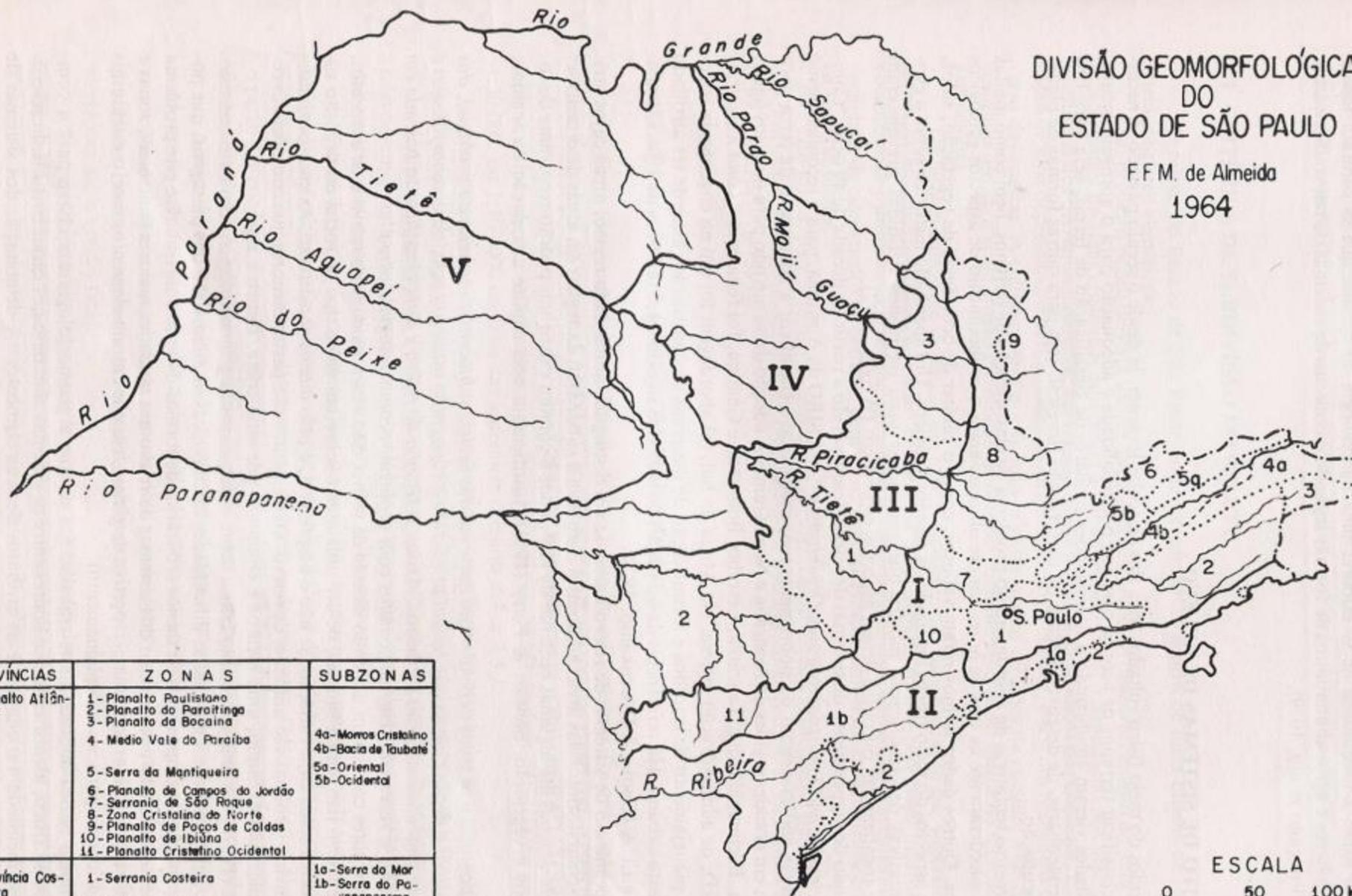
GSA0621 Princípios de Geologia Sedimentar

ROCHAS SEDIMENTARES NO ESTADO DE SÃO PAULO



DIVISÃO GEOMORFOLÓGICA
DO
ESTADO DE SÃO PAULO

F.F.M. de Almeida
1964



PROVÍNCIAS	ZONAS	SUBZONAS
I-Planalto Atlântico	1- Planalto Paulistano 2- Planalto do Paraitinga 3- Planalto da Bocaina 4- Médio Vale do Paraíba 5- Serra da Mantiqueira 6- Planalto de Campos do Jordão 7- Serrania de São Roque 8- Zona Cristalina do Norte 9- Planalto de Poços de Caldas 10- Planalto de Ibiúna 11- Planalto Cristatino Ocidental	4a- Morros Cristalino 4b- Bacia de Taubaté 5a- Oriental 5b- Ocidental
II- Província Costeira	1- Serrania Costeira 2- Baixadas Litorâneas	1a- Serra do Mar 1b- Serra do Paranapanema
III- Depressão Periférica	1- Zona do Médio Tietê 2- Zona do Paranapanema 3- Zona do Moji Guaçu	
IV- Cuestas Basálticas		
V- Planalto Ocidental		

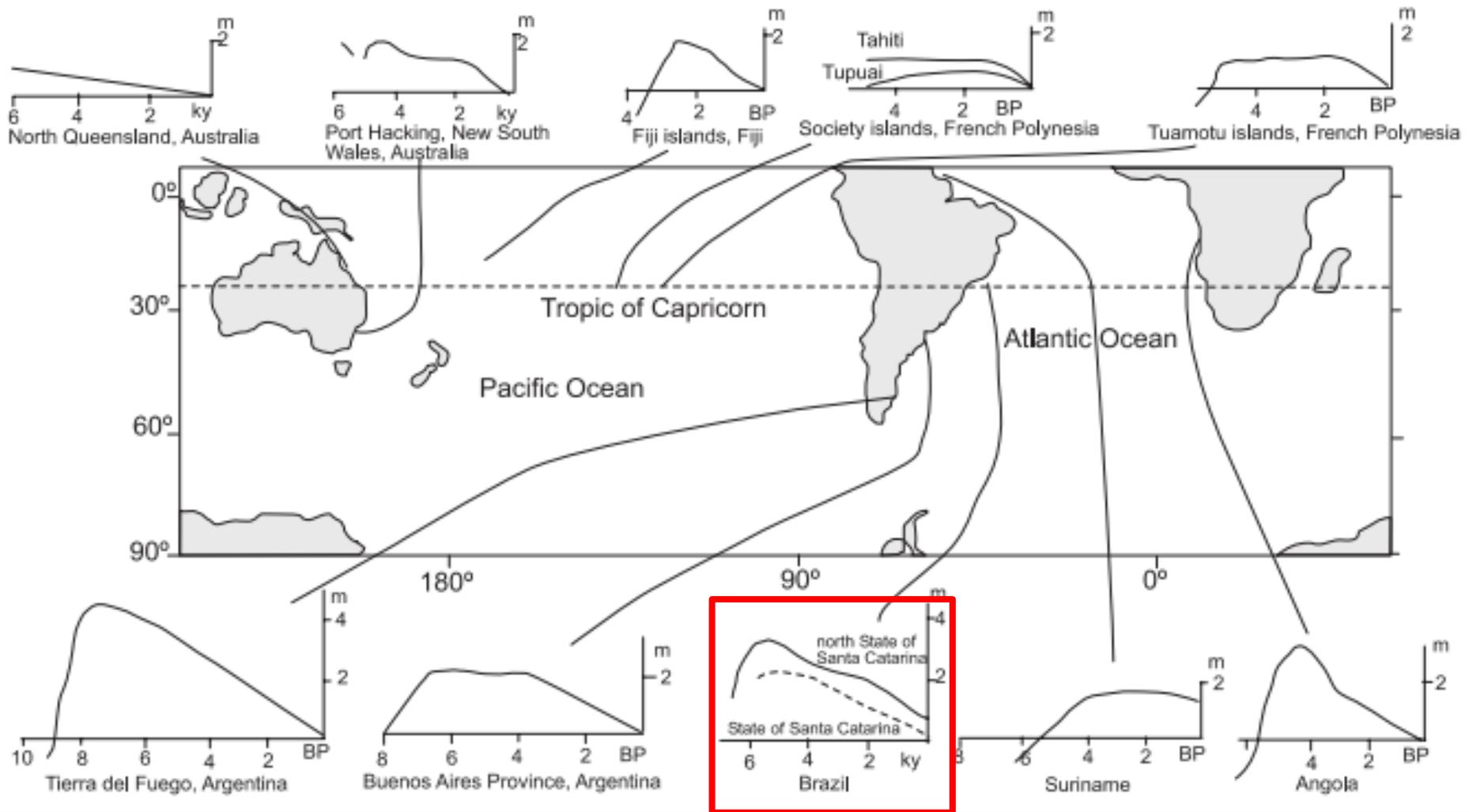
Almeida (1964)

Província Costeira

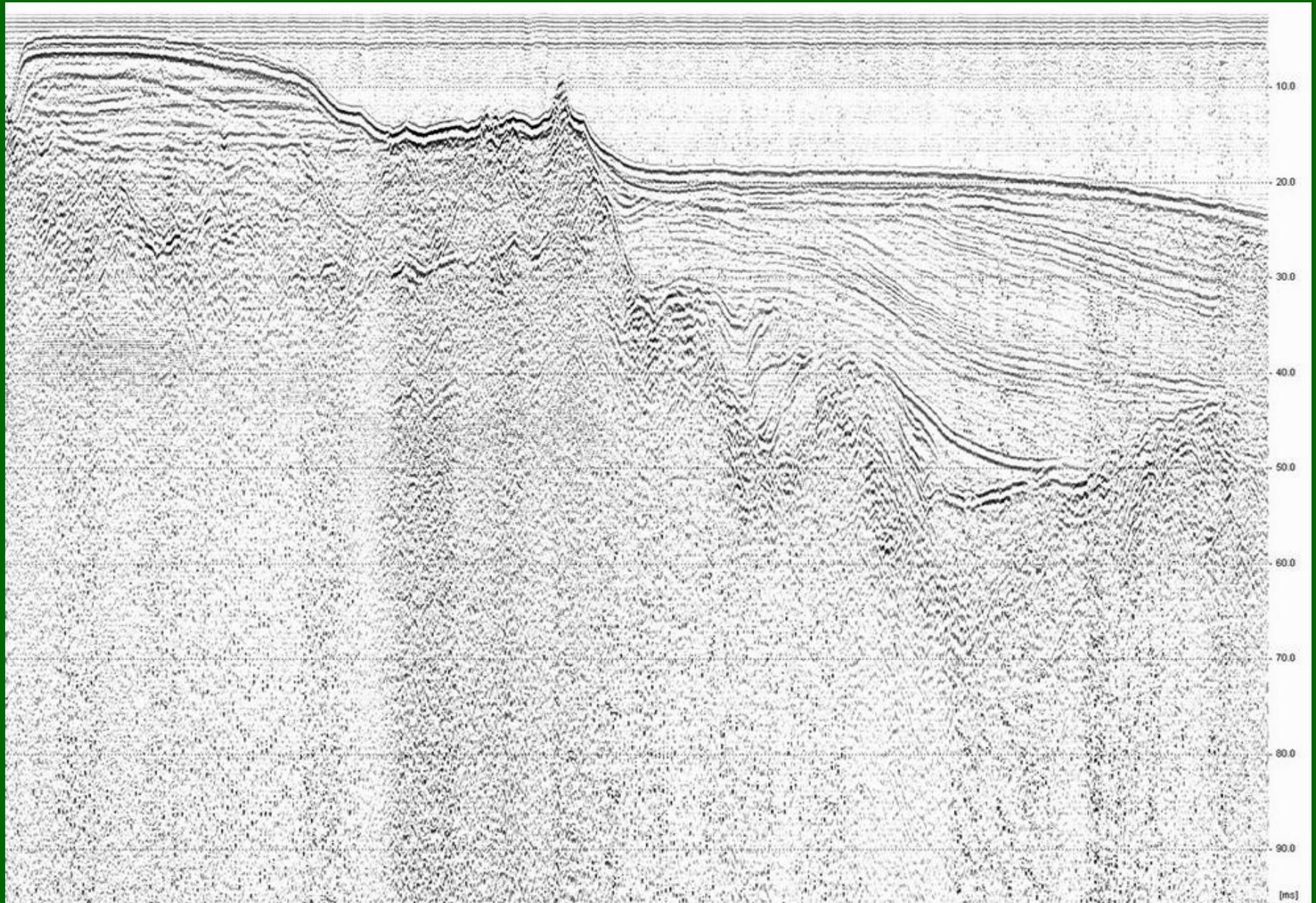


Província Costeira

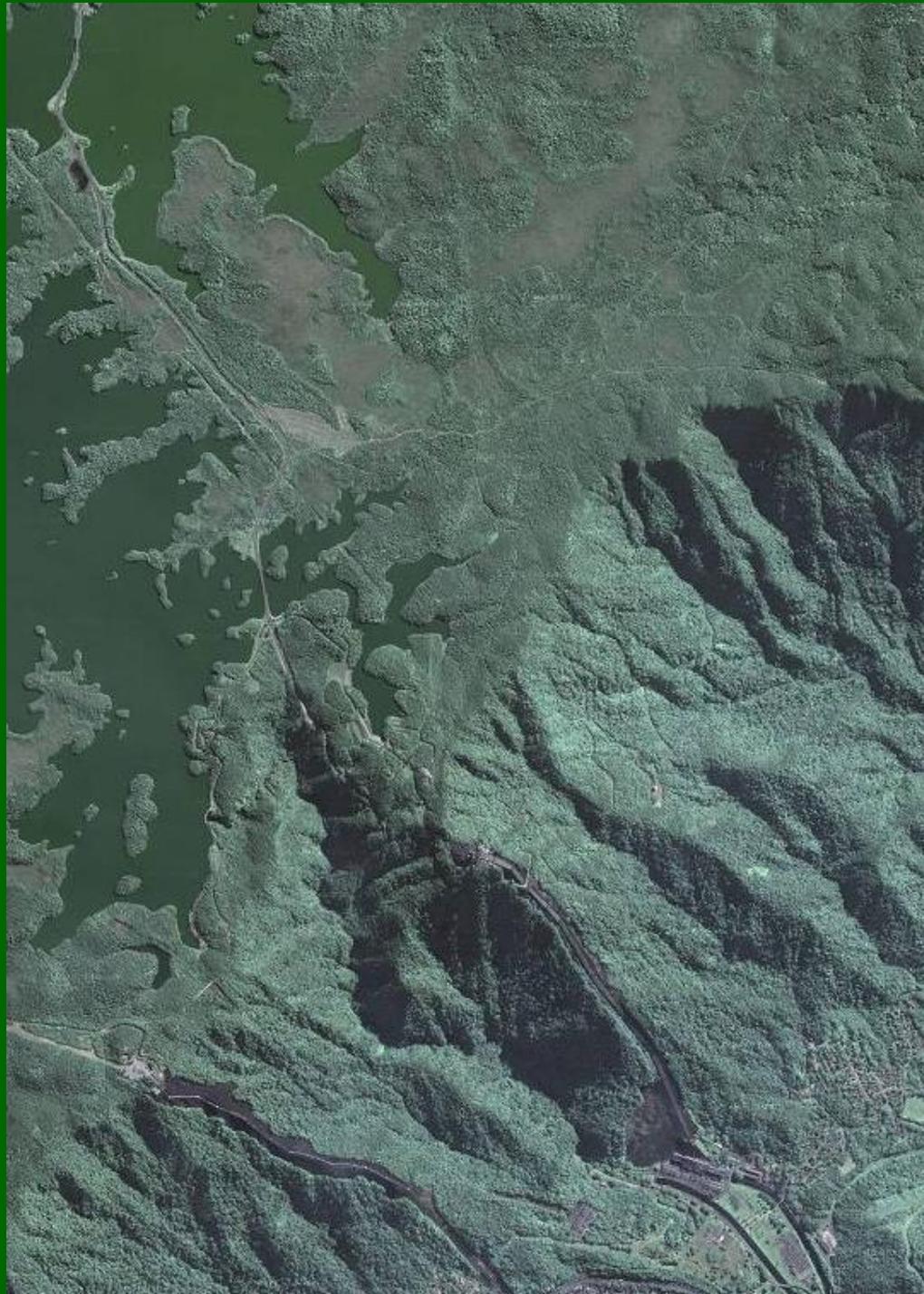




Ângulo et al. (2006)



Mahiques (inédito)



Serra do Mar

Serra do Mar – Serrania Costeira





Serra do Mar



UHE Henry Borden - 1926

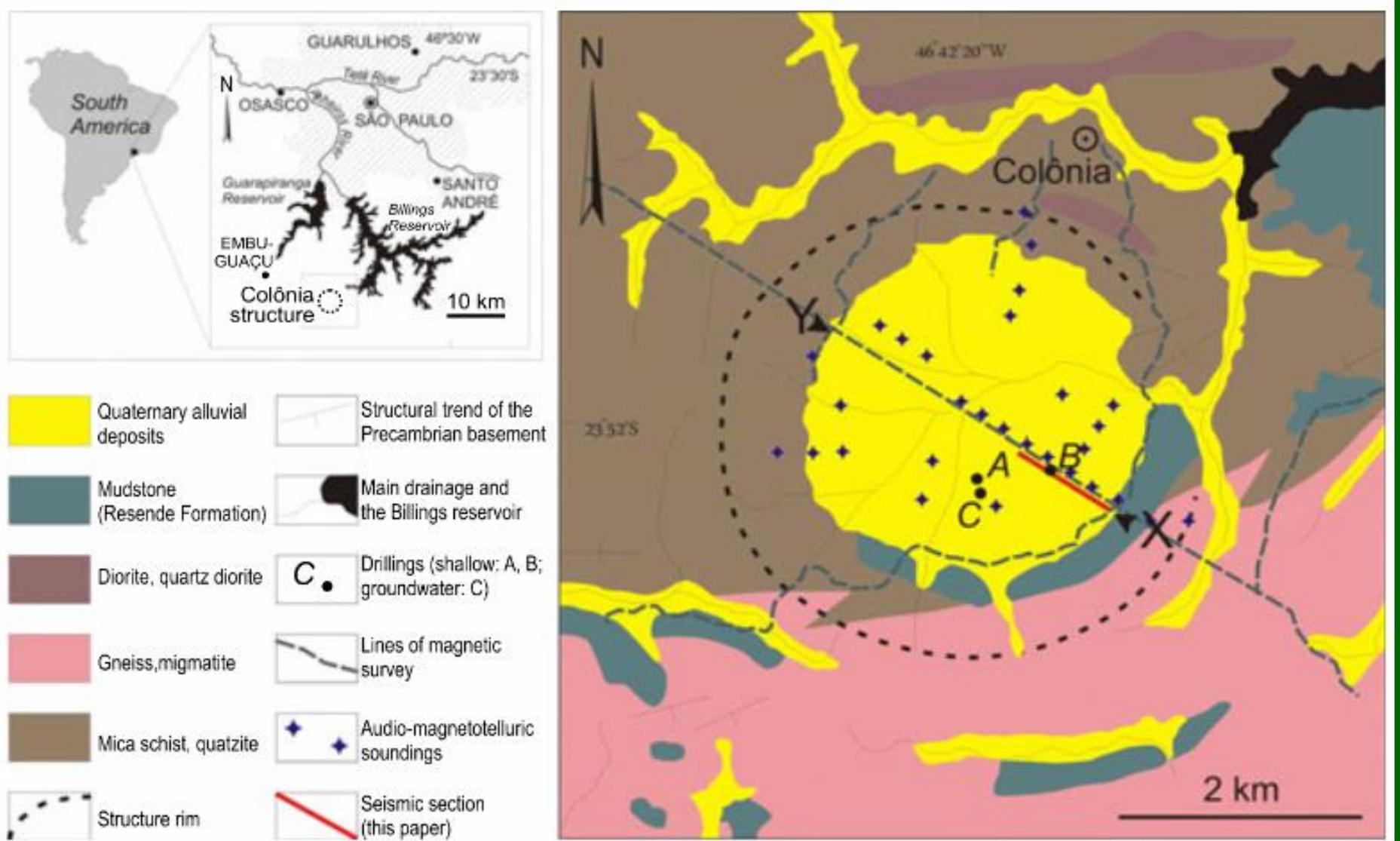
Planalto Atlântico

Serra do Mar

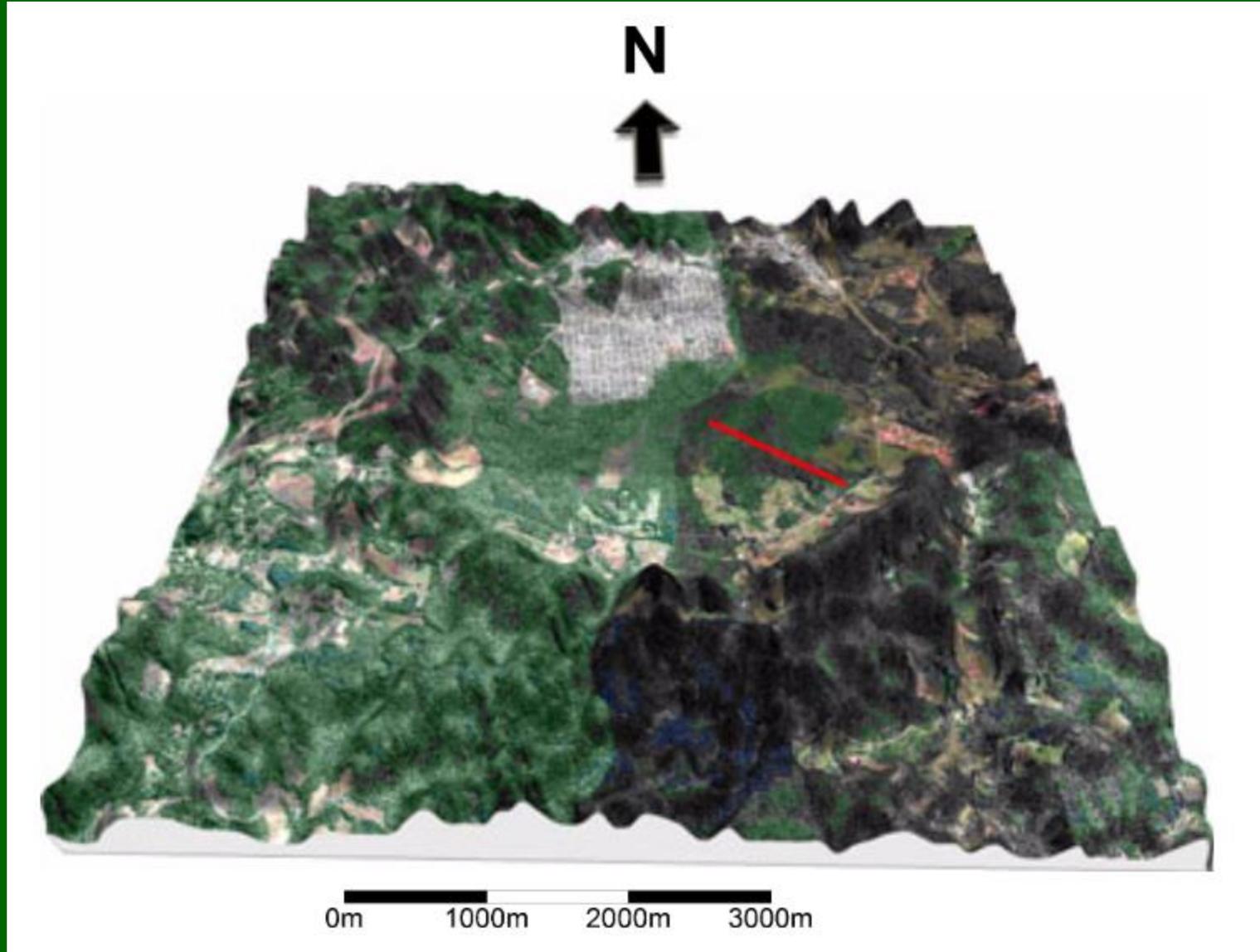


UHE Henry Borden - 1926

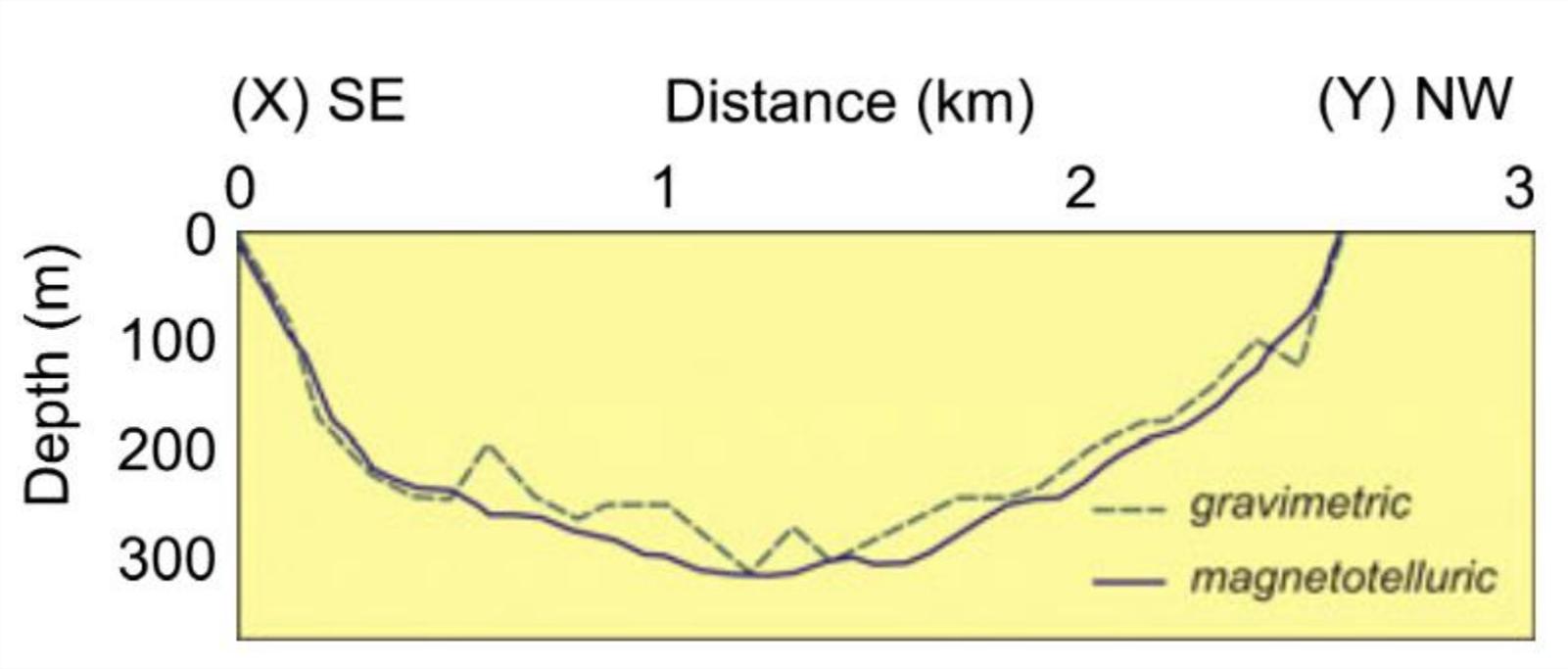
Planalto Atlântico – Cratera de Colônia



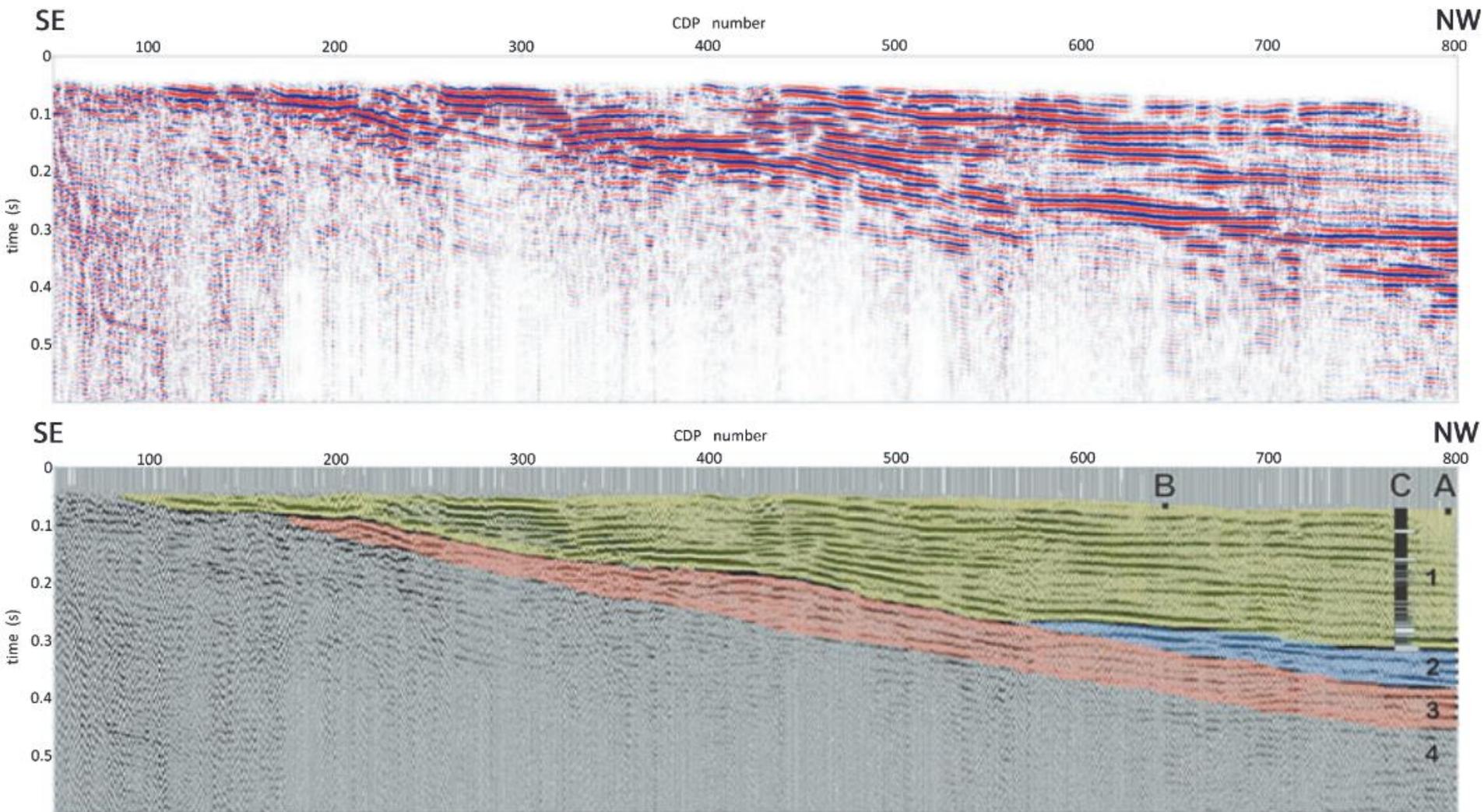
Planalto Atlântico – Cratera de Colônia



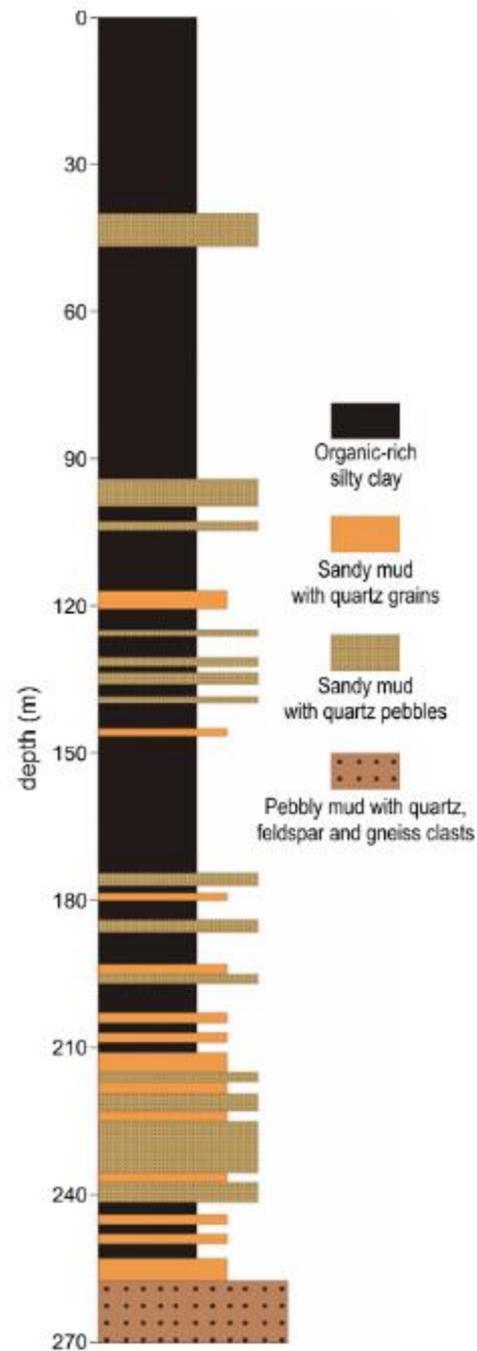
Planalto Atlântico – Cratera de Colônia



Planalto Atlântico – Cratera de Colônia



Planalto Atlântico – Cratera de Colônia



Riccomini et al. (2011)

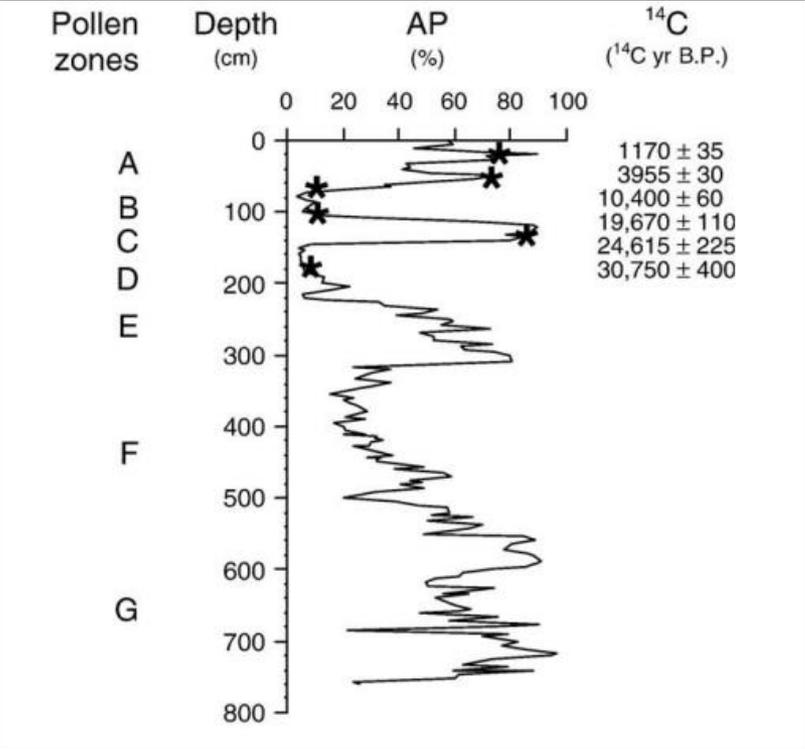
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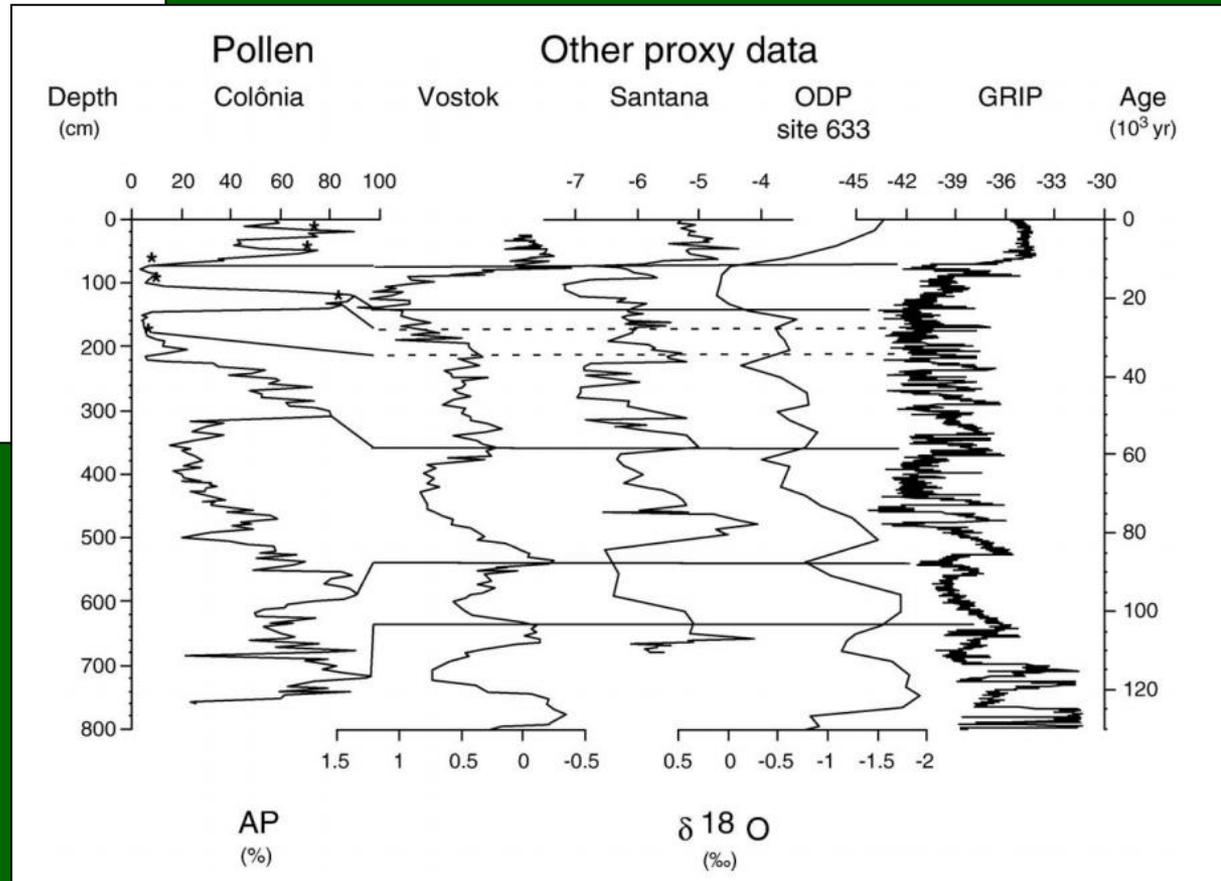
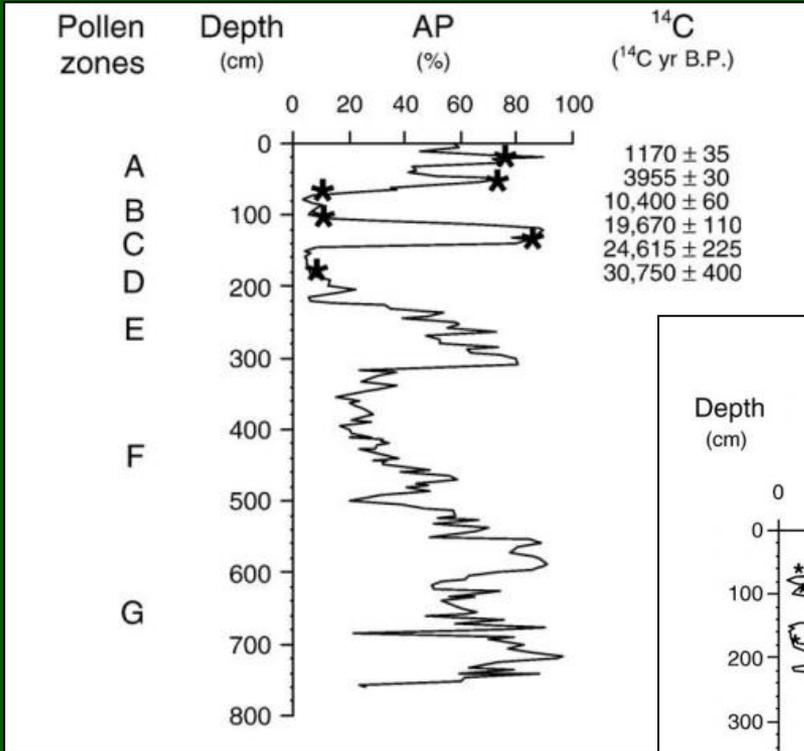
Planalto Atlântico – Cratera de Colônia



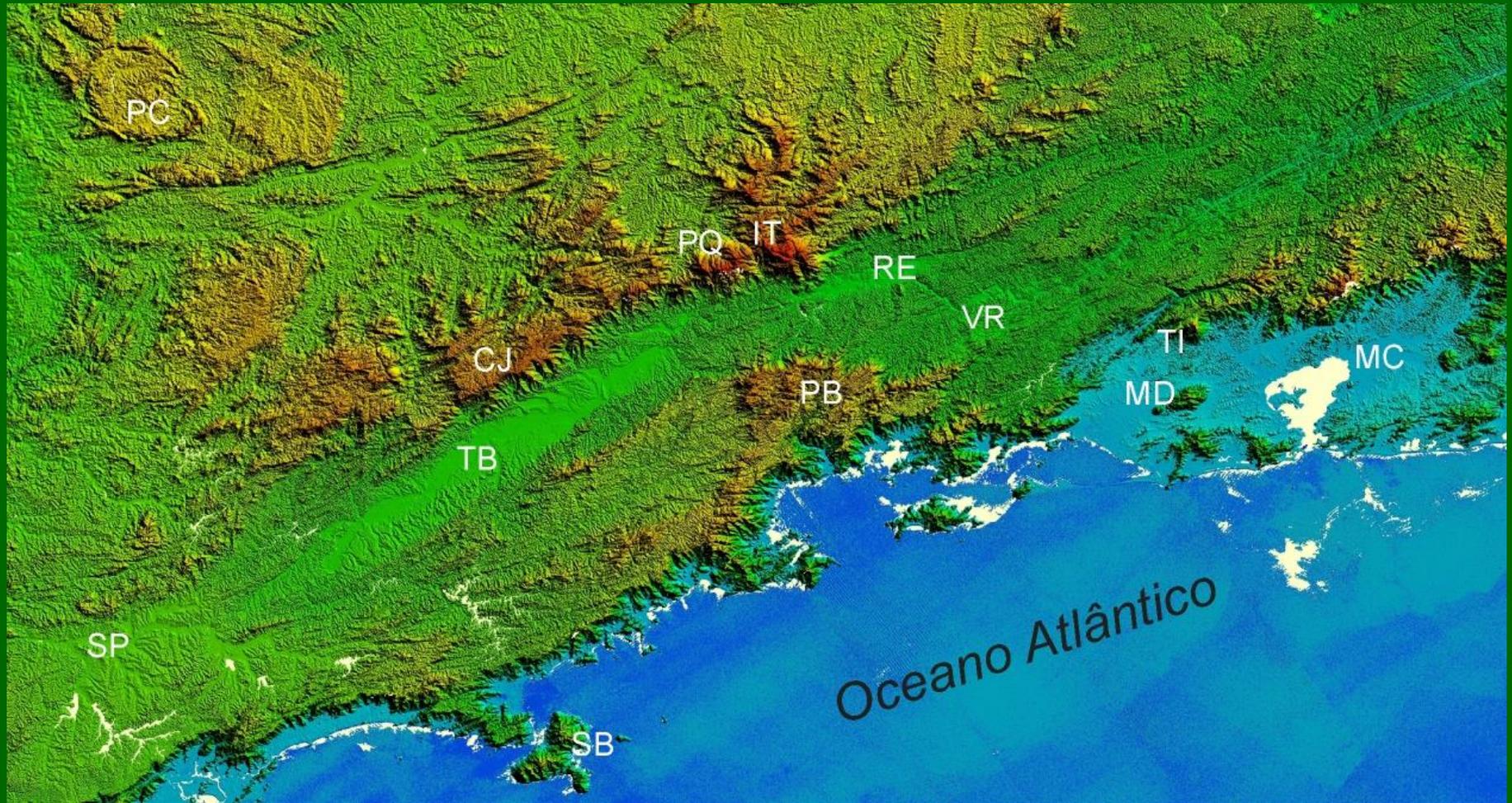
Planalto Atlântico – Cratera de Colônia



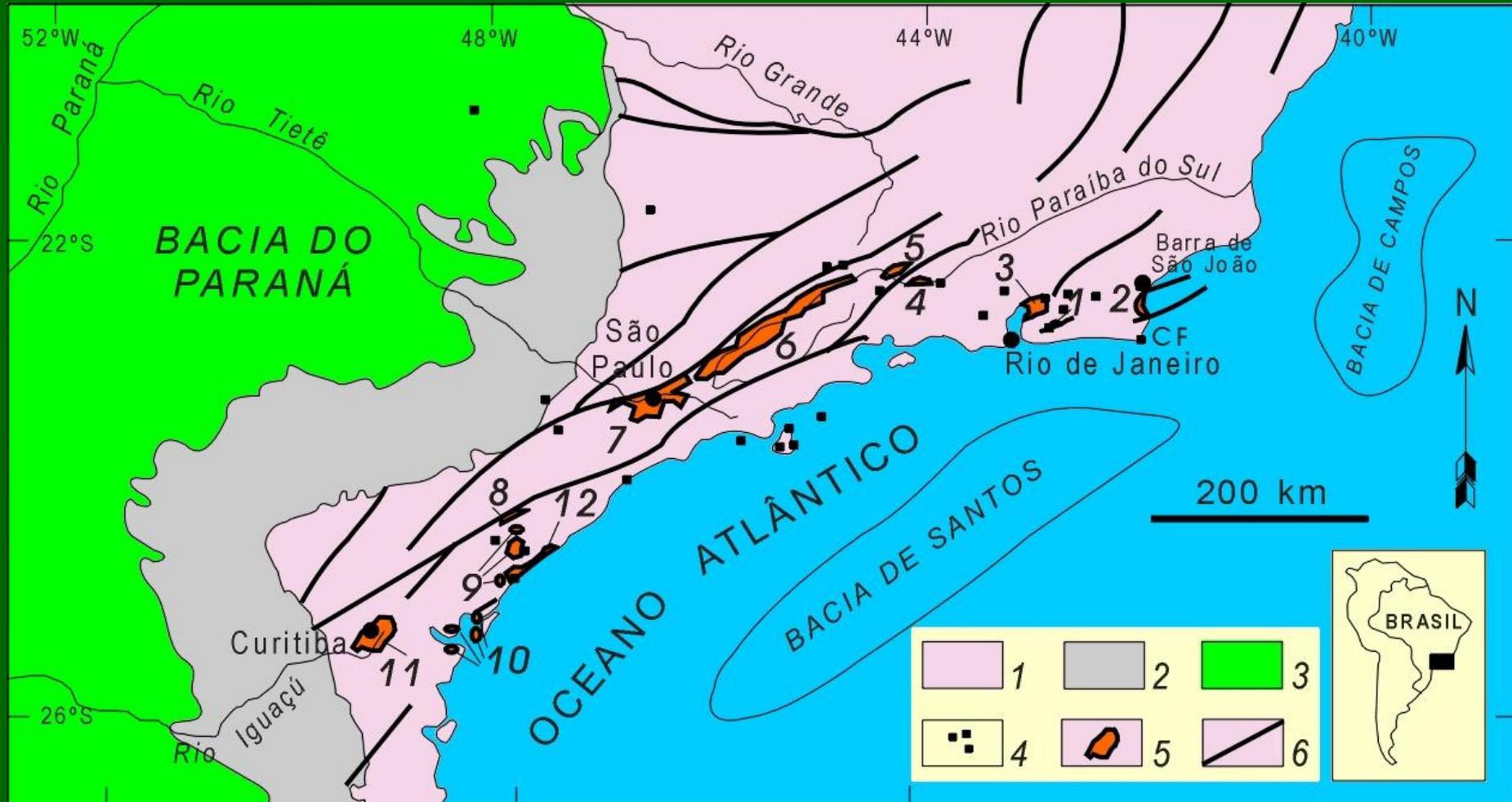
Planalto Atlântico – Cratera de Colônia



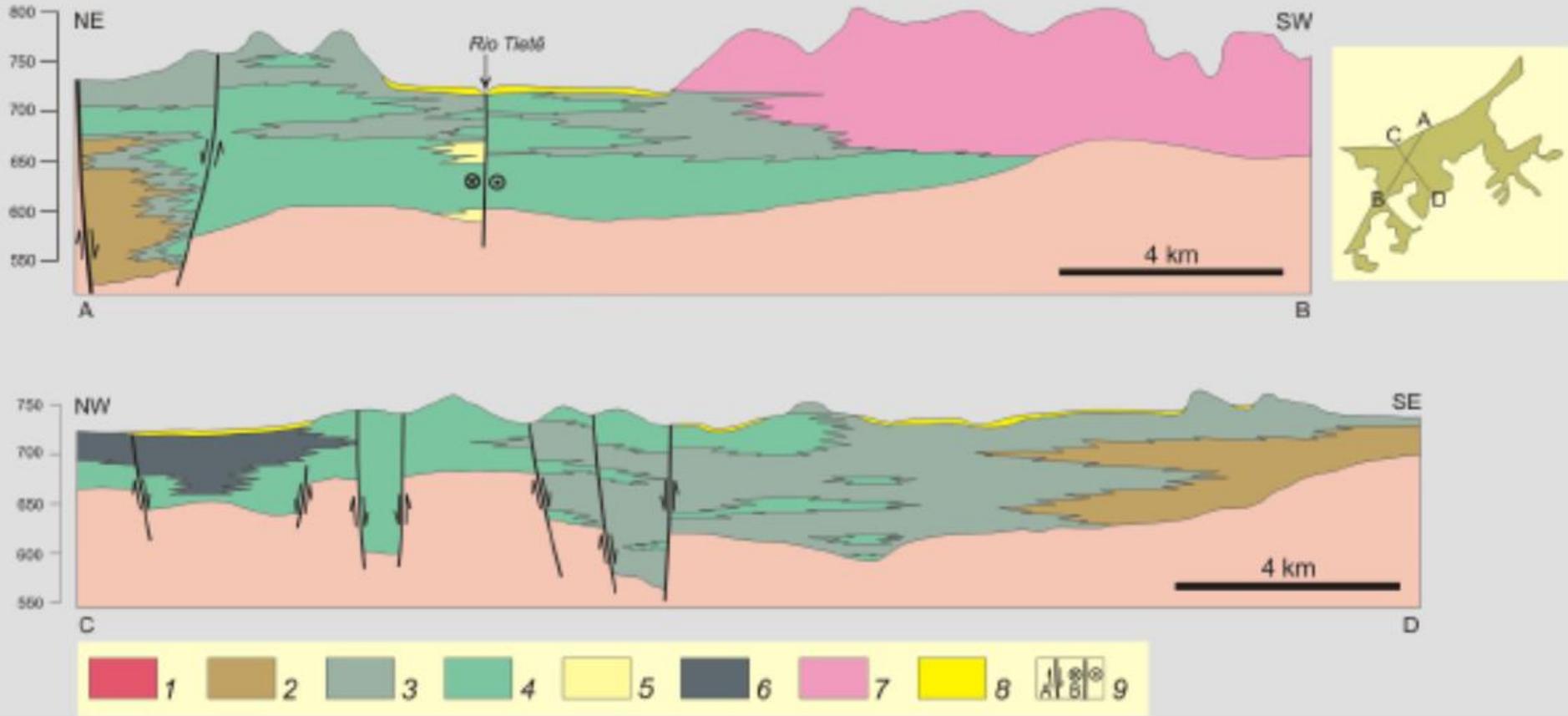
Planalto Atlântico – Bacia de São Paulo



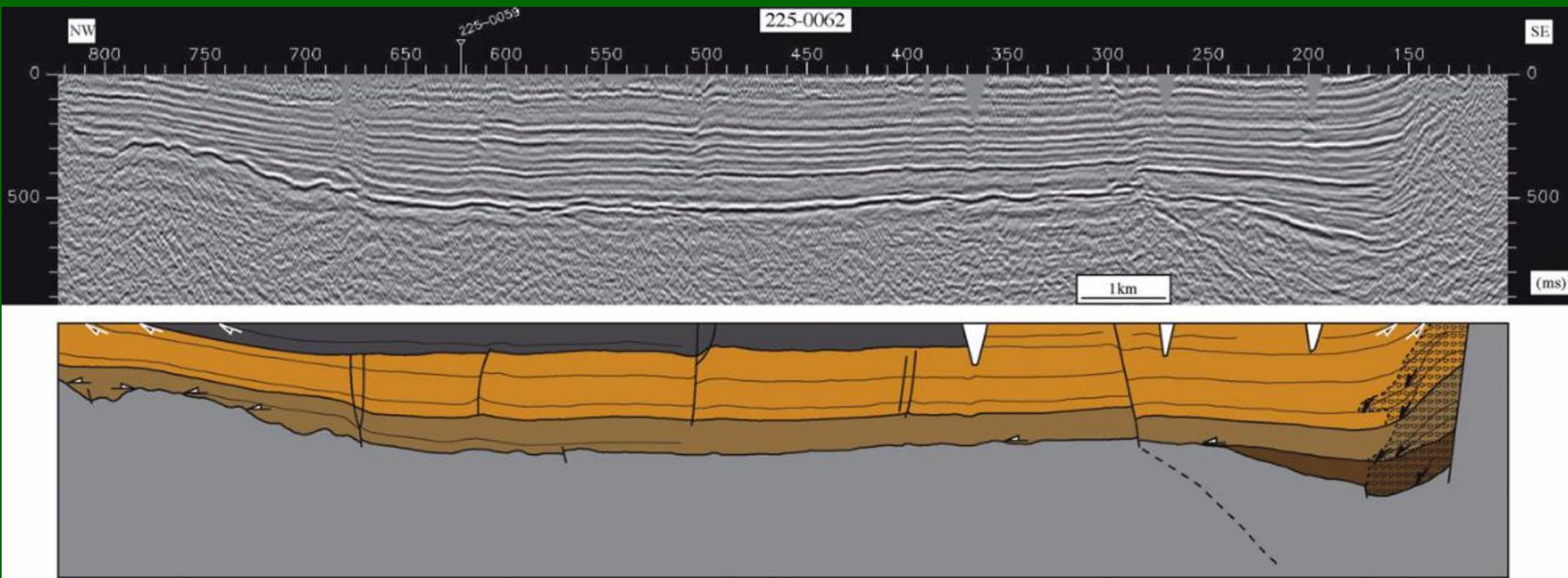
Planalto Atlântico – Bacia de São Paulo



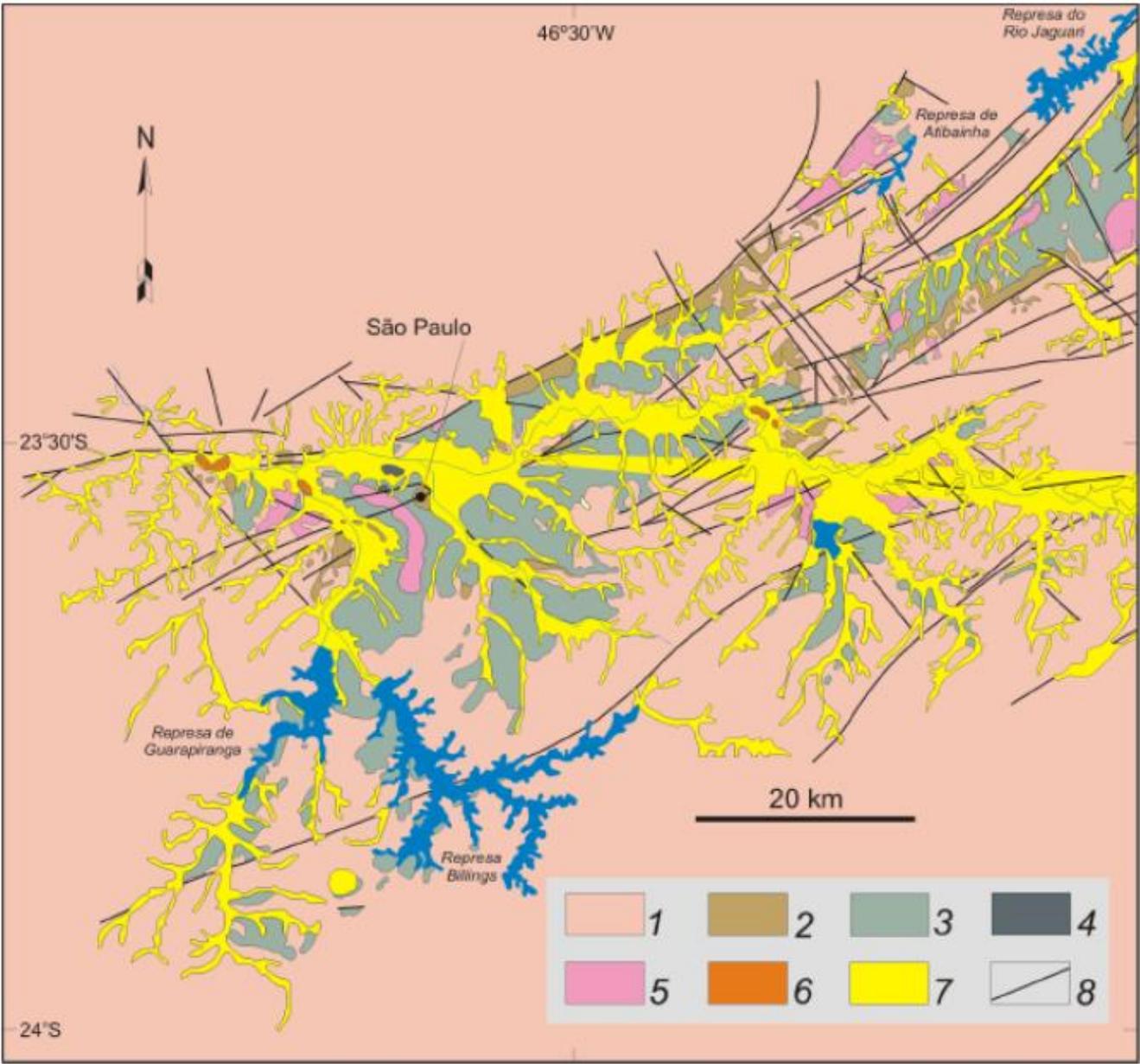
Planalto Atlântico – Bacia de São Paulo



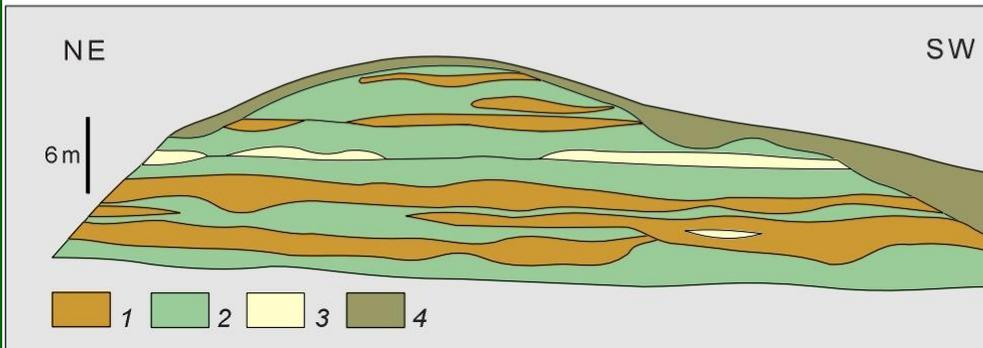
Planalto Atlântico – Bacia de Taubaté



Planalto Atlântico – Bacia de São Paulo



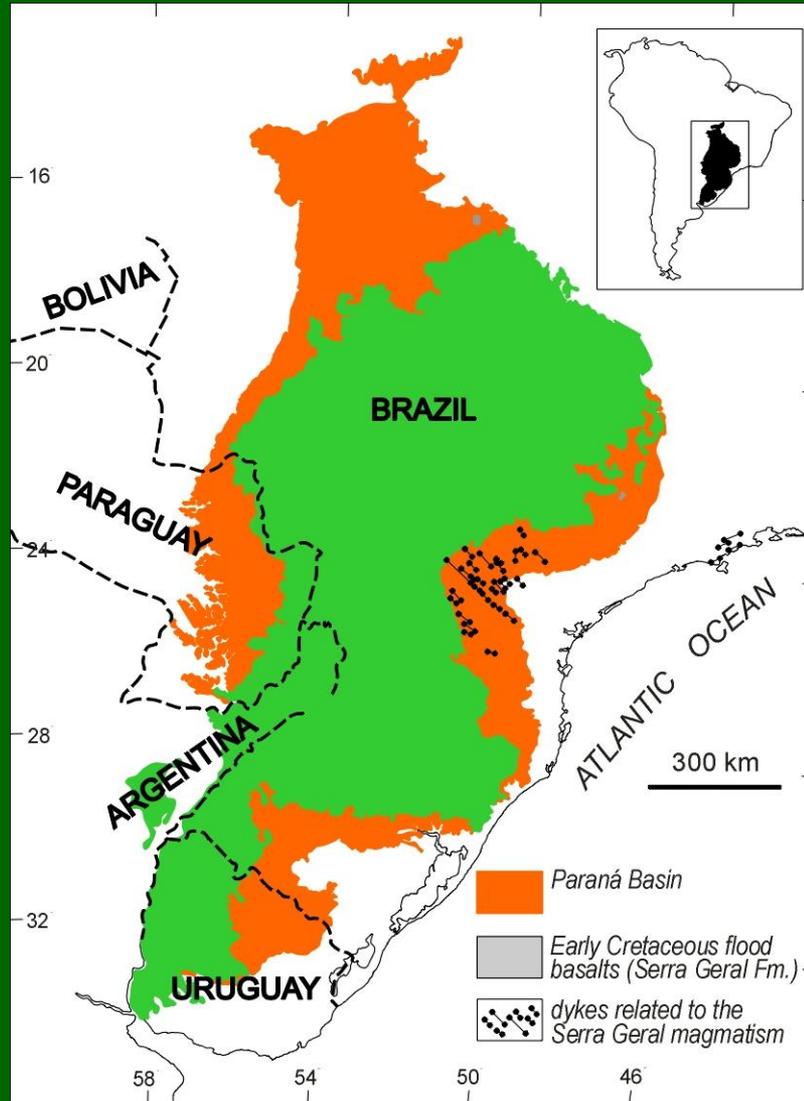
Planalto Atlântico



Planalto Atlântico – Serrania de São Roque



Depressão Periférica



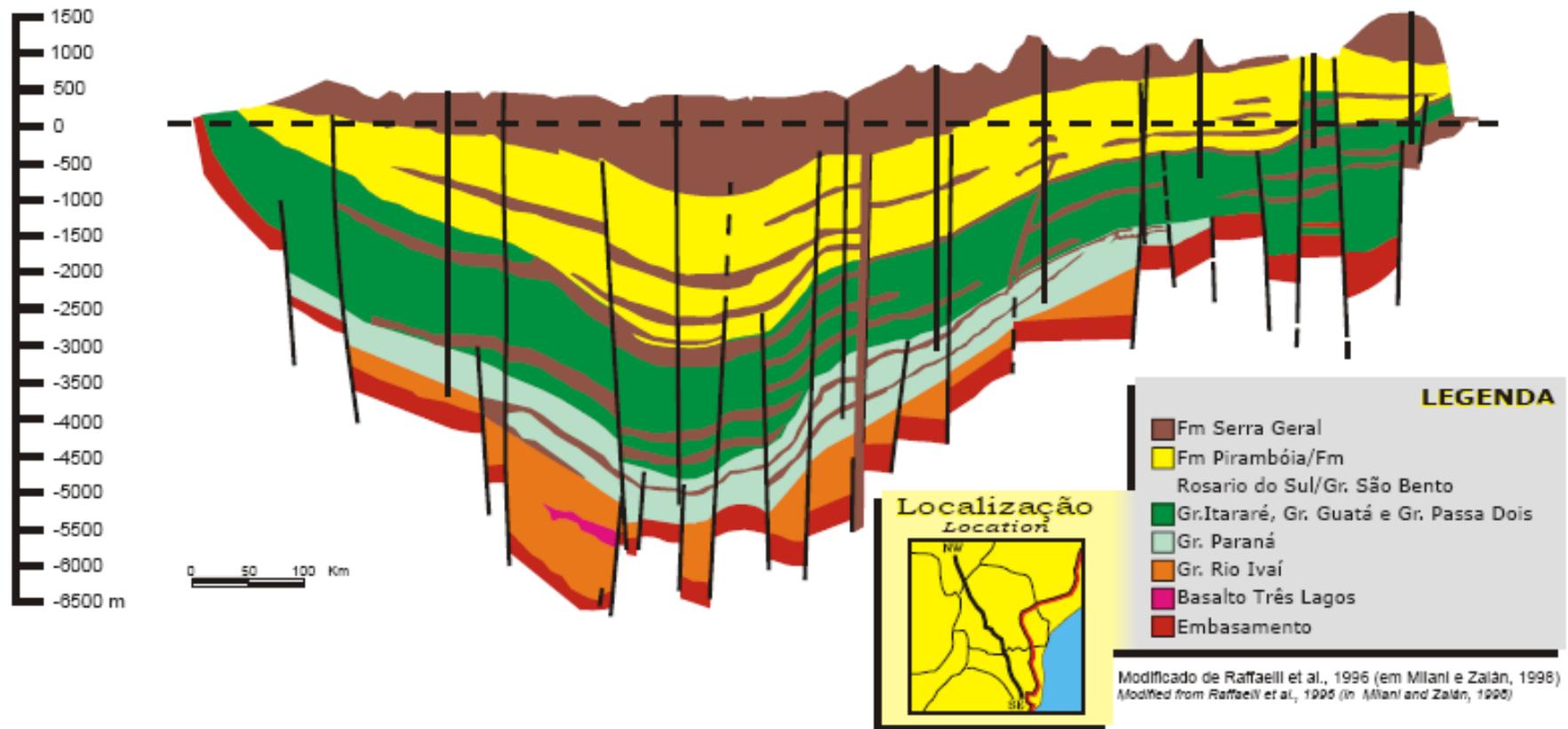
Bacia do Paraná

SEÇÃO GEOLÓGICA ESQUEMÁTICA DA BACIA DO PARANÁ

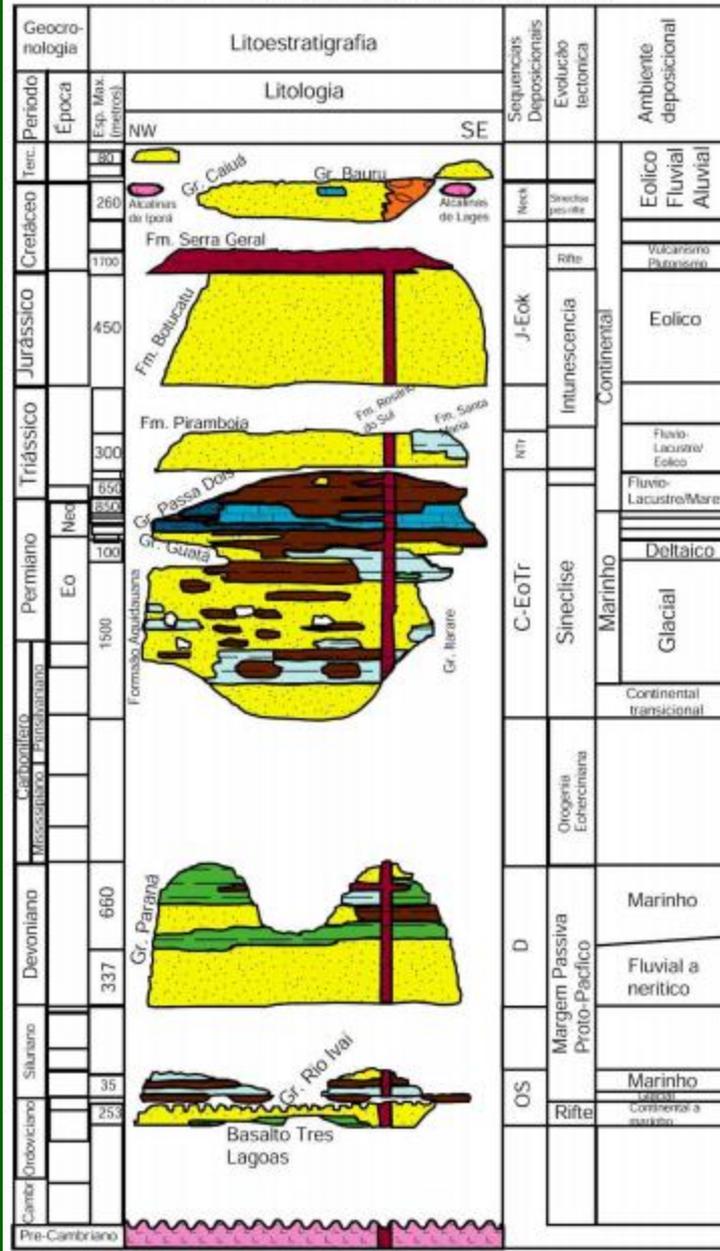
PARANÁ BASIN SCHEMATIC CROSS-SECTION

NW

SE



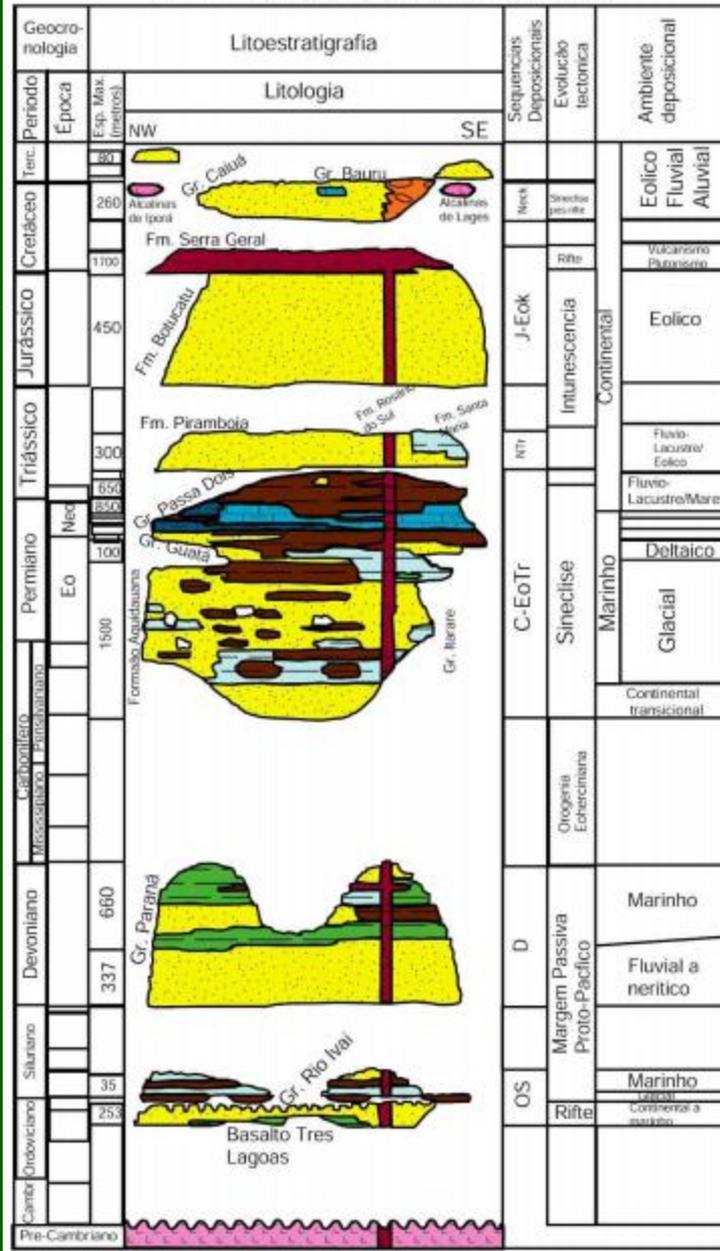
Carta Estratigráfica da Bacia do Paraná



Ritmito de Itu



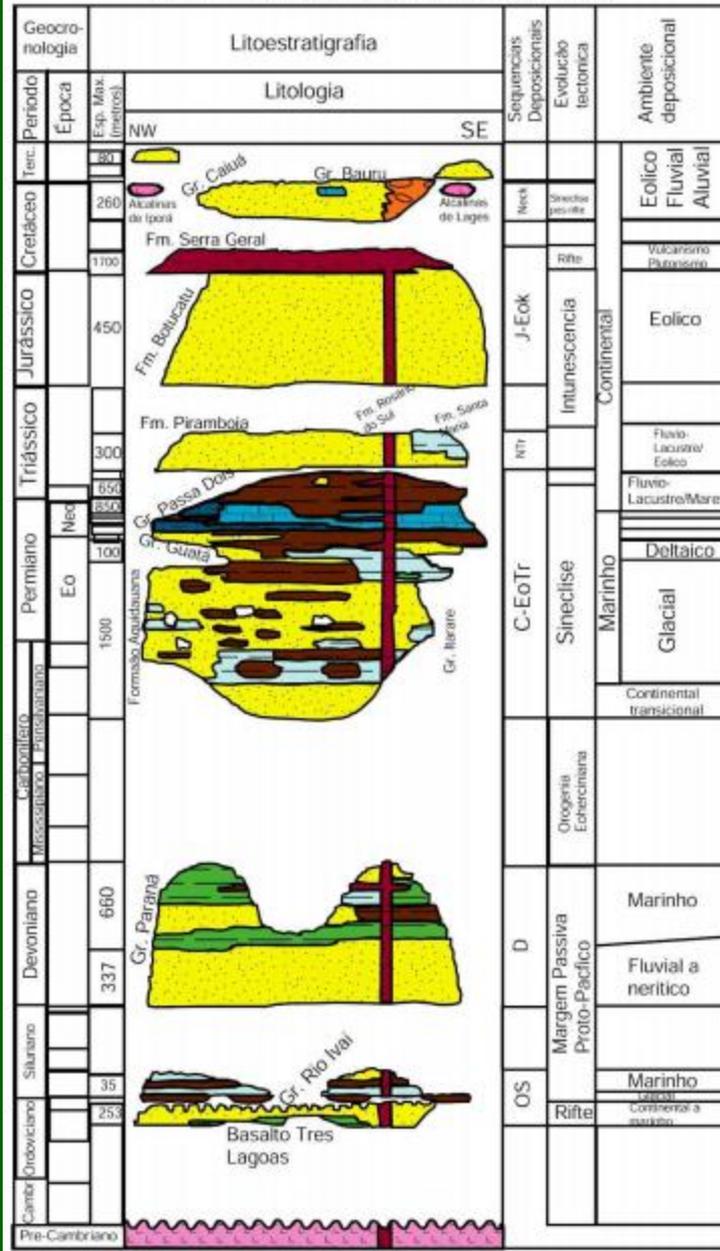
Carta Estratigráfica da Bacia do Paraná



Formação Tatuí (~Rio Bonito+Palermo)



Carta Estratigráfica da Bacia do Paraná



Formação Assistência (Irati)



Fm. Assistência
(Permiano, Bacia do Paraná)

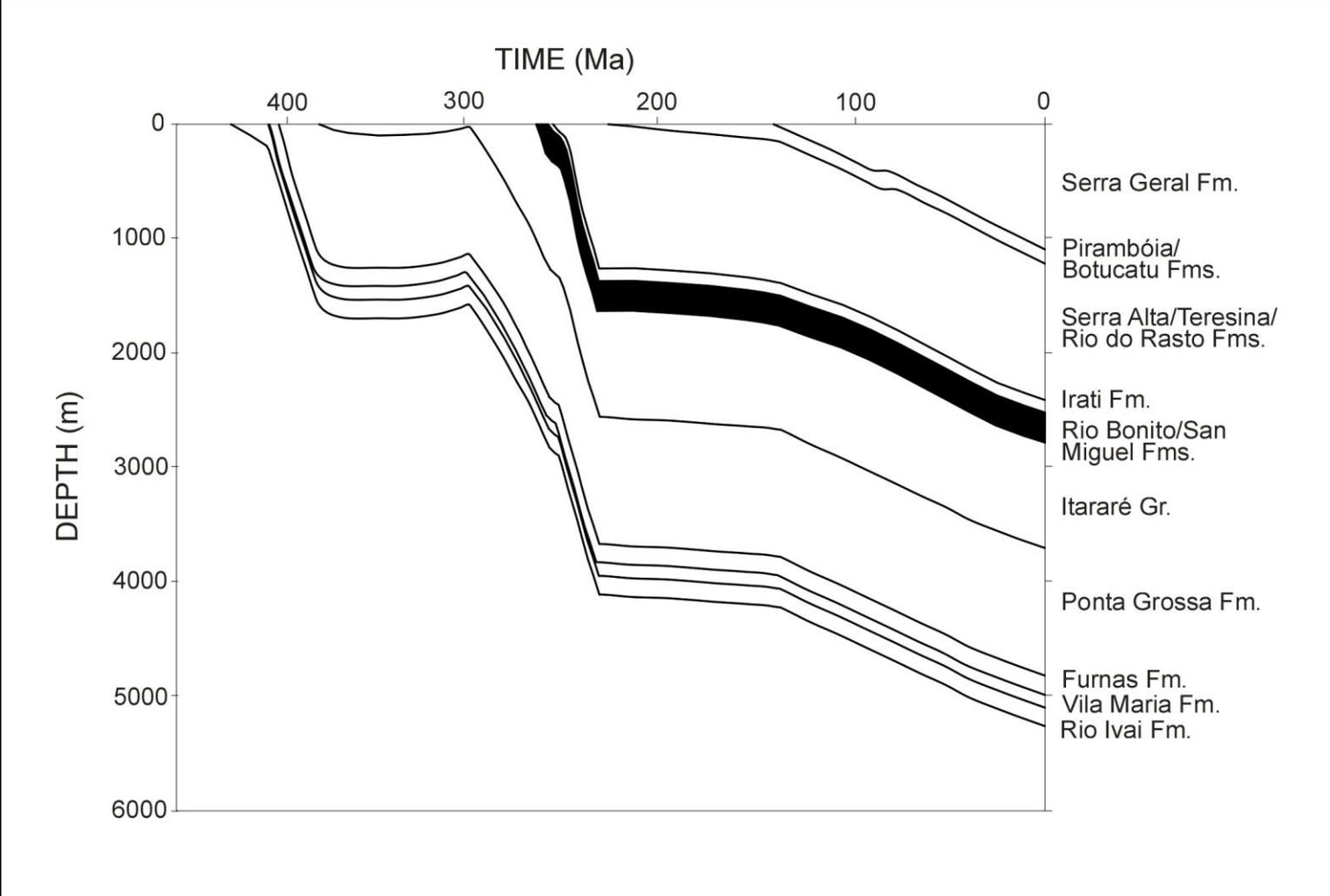


Ritmito (dolomito e folhelho)

Betume em fratura no dolomito









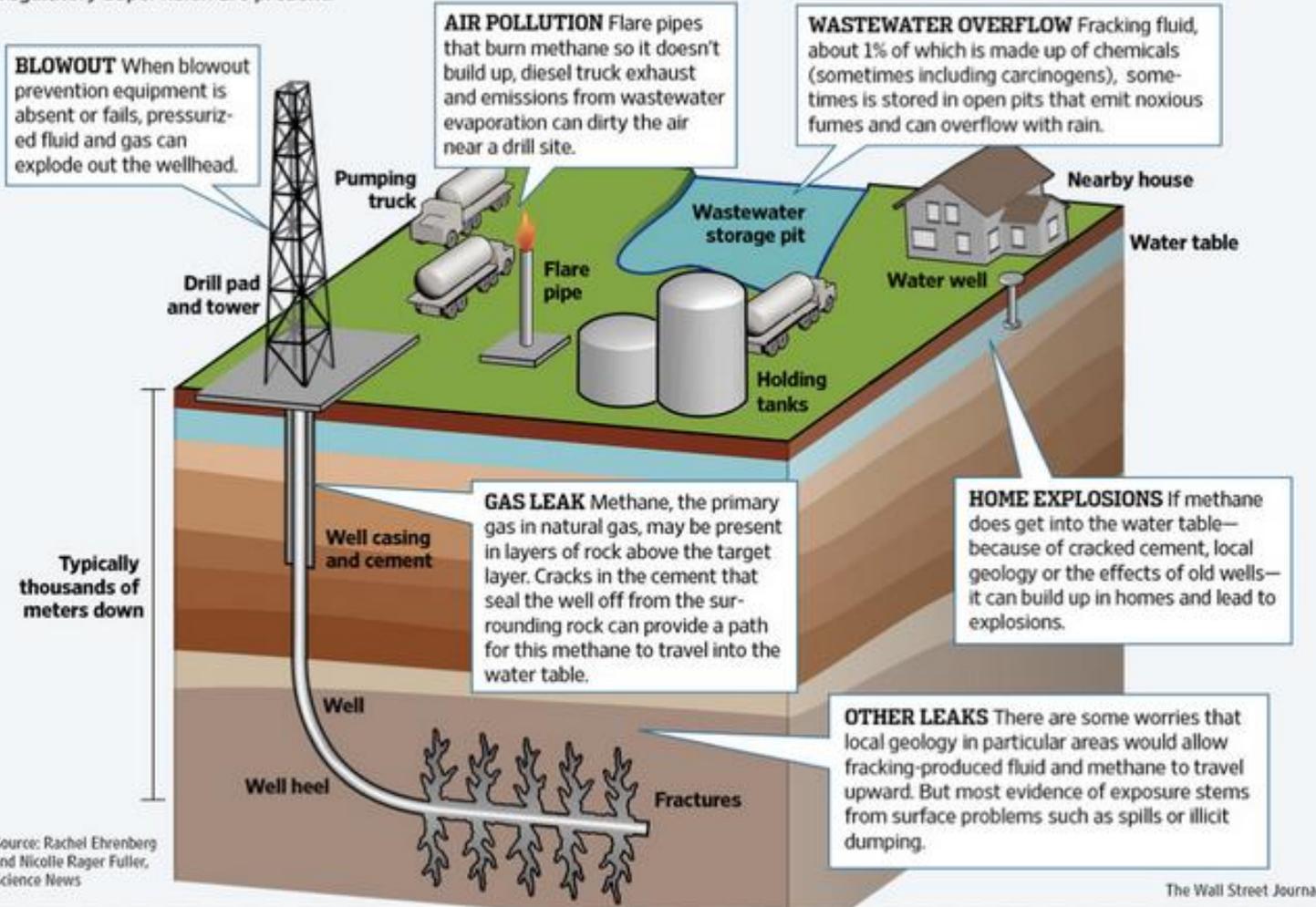




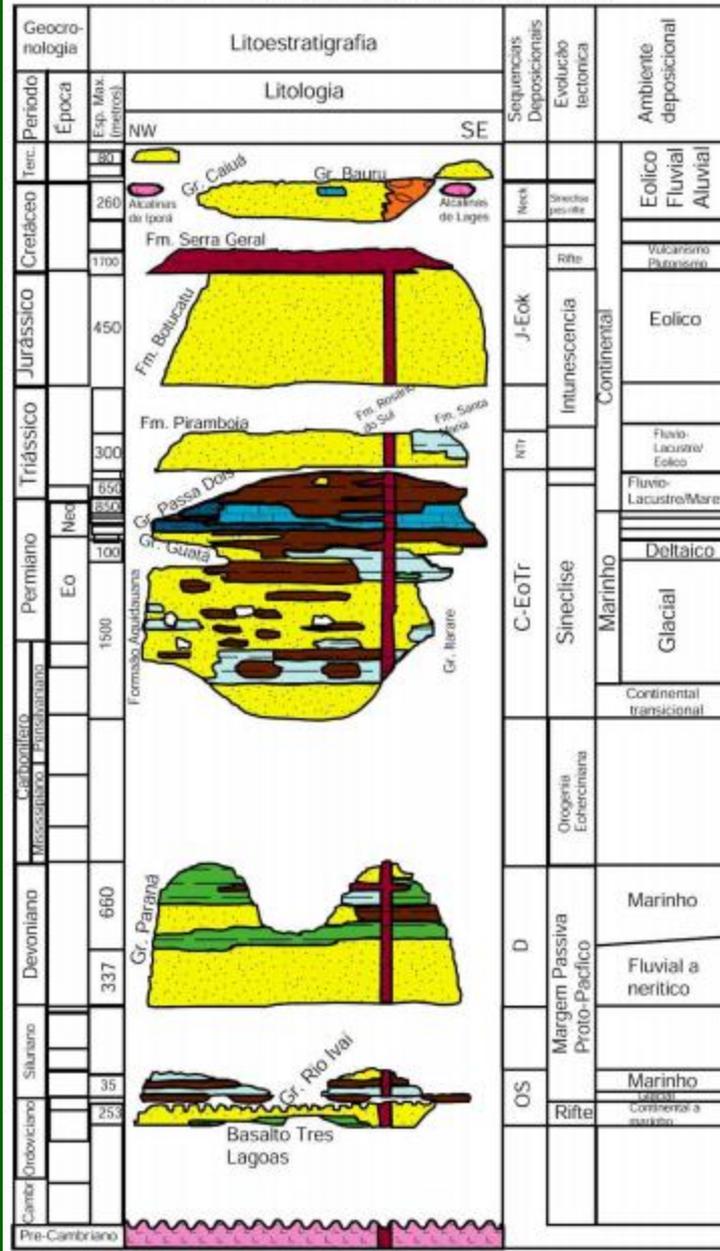


Getting It Out | How shale wells work and what can go wrong

To extract shale gas, engineers typically drill straight down to the target layer of shale, and then they drill the well horizontally. Explosives set off in the horizontal portion create holes in the well's sides through which millions of gallons of fracking fluid are pumped. The fluid fractures the shale, releasing the trapped gas for recovery. It's a big operation that has the following potential hazards—most of which aren't specific to fracking but can come with many large-scale energy operations depending on what kind of practices and regulatory supervision are present:



Carta Estratigráfica da Bacia do Paraná



Formação Corumbataí - Permiano



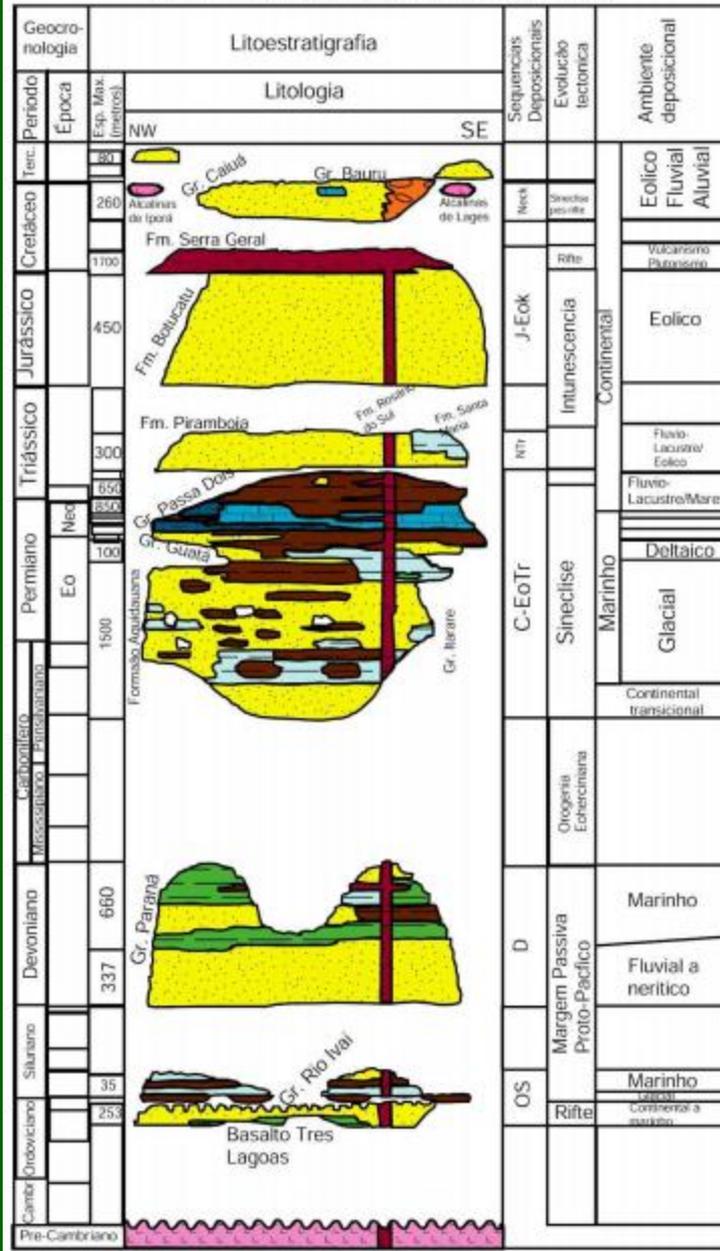
CEAPLA, UNESP, Rio Claro

Cuestas basálticas



Foto: M. L. Assine

Carta Estratigráfica da Bacia do Paraná





SOS Cuesta de Botucatu

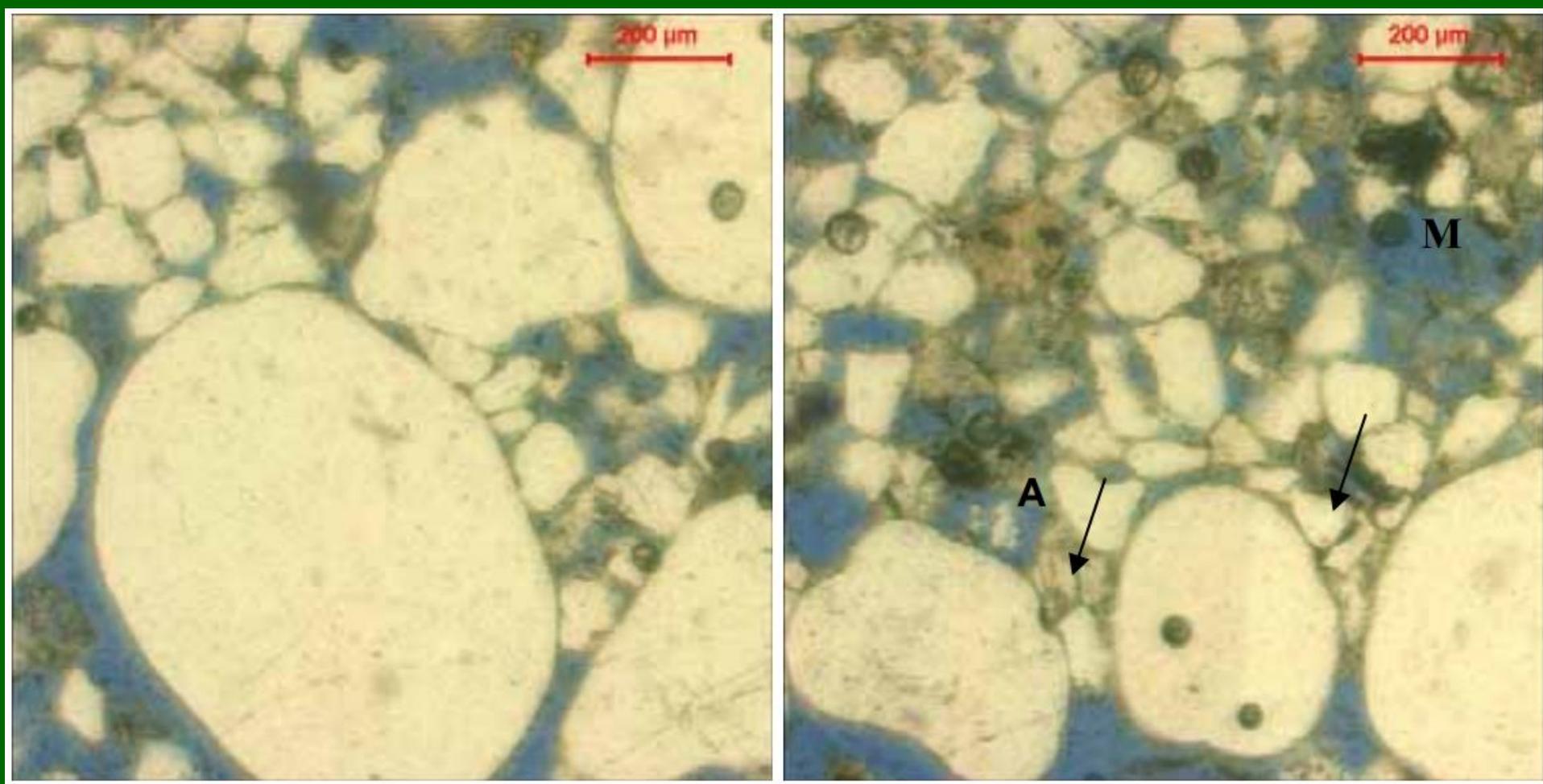
Formação Pirambóia (Triássico) – arenitos eólicos



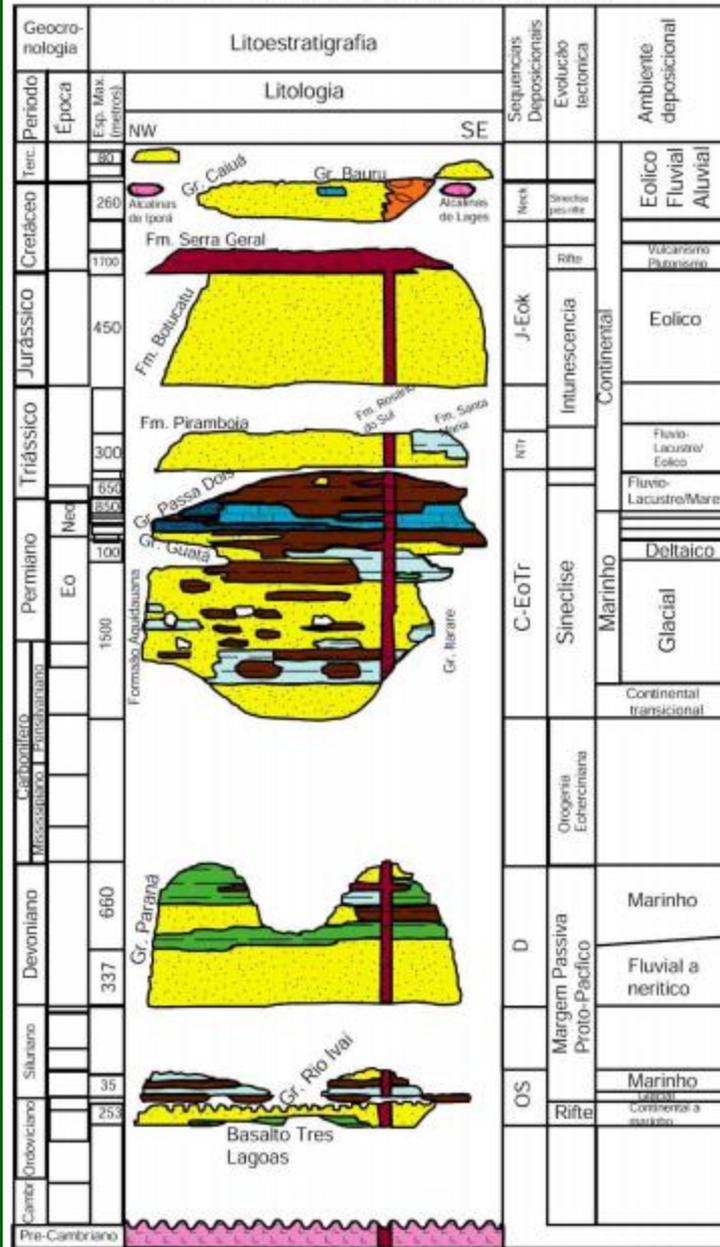
Formação Pirambóia (Triássico) – arenitos eólicos



Formação Pirambóia (Triássico) – arenitos eólicos



Carta Estratigráfica da Bacia do Paraná



Formação Botucatu (Cretáceo Inferior) – arenitos eólicos



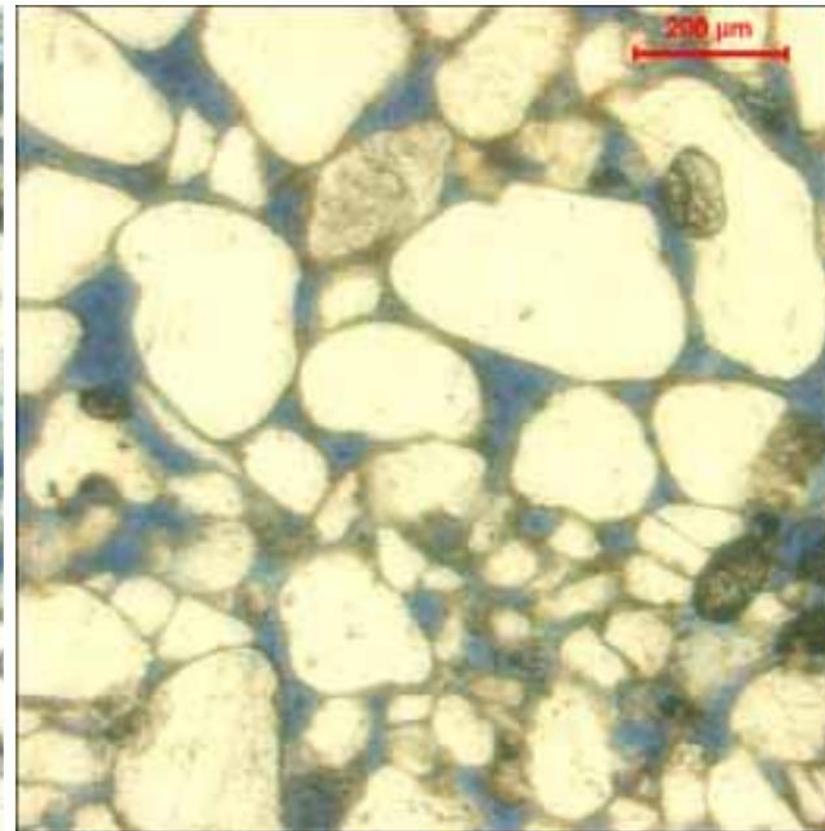
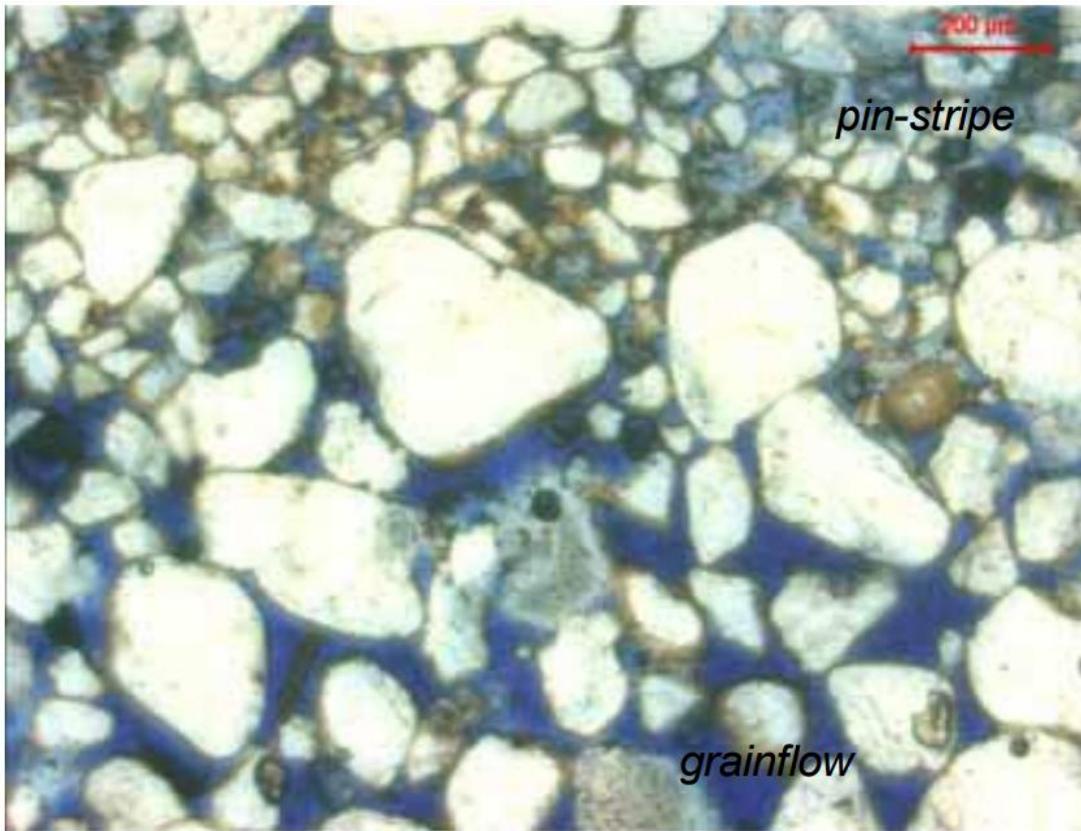
Foto: M. L. Assine

Formação Botucatu (Cretáceo Inferior) – arenitos eólicos



Foto: M. L. Assine

Formação Botucatu (Cretáceo Inferior) – arenitos eólicos



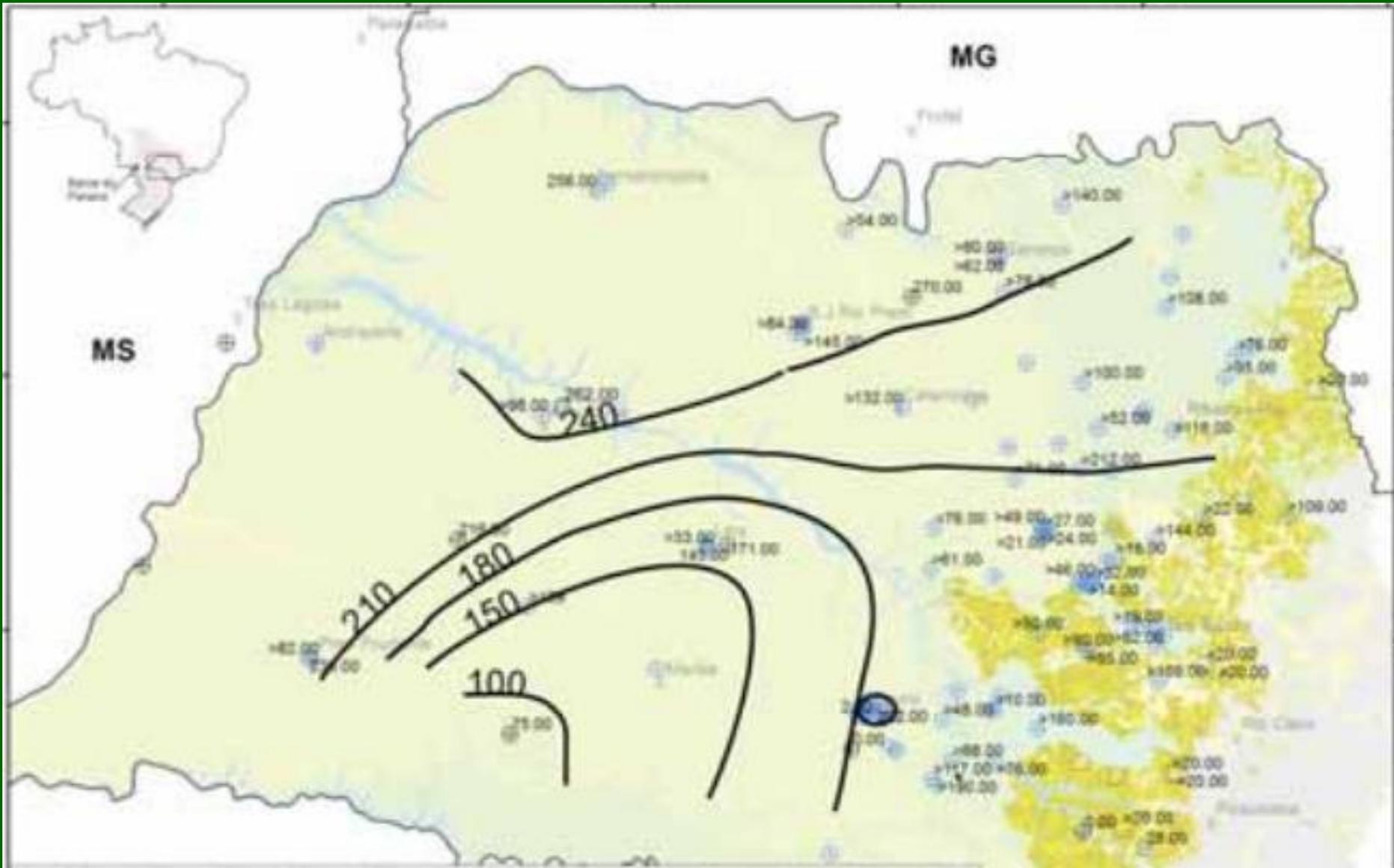
Sistema aquífero Guarani



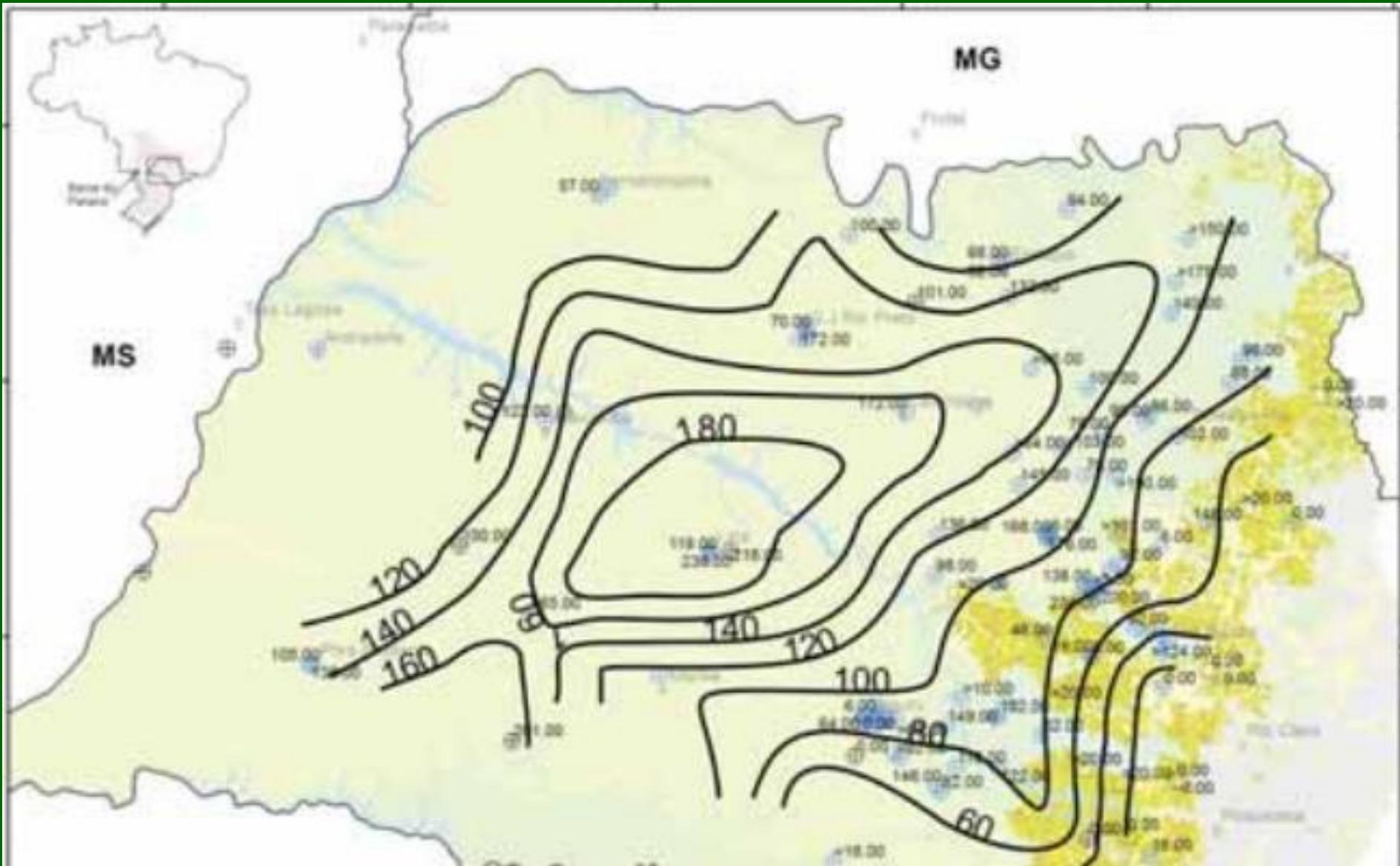
■ Afloramento do Sistema Aquífero Guarani

■ Sistema Aquífero Guarani em confinamento

Isópacas Fm. Pirambóia



Isópacas Fm. Botucatu

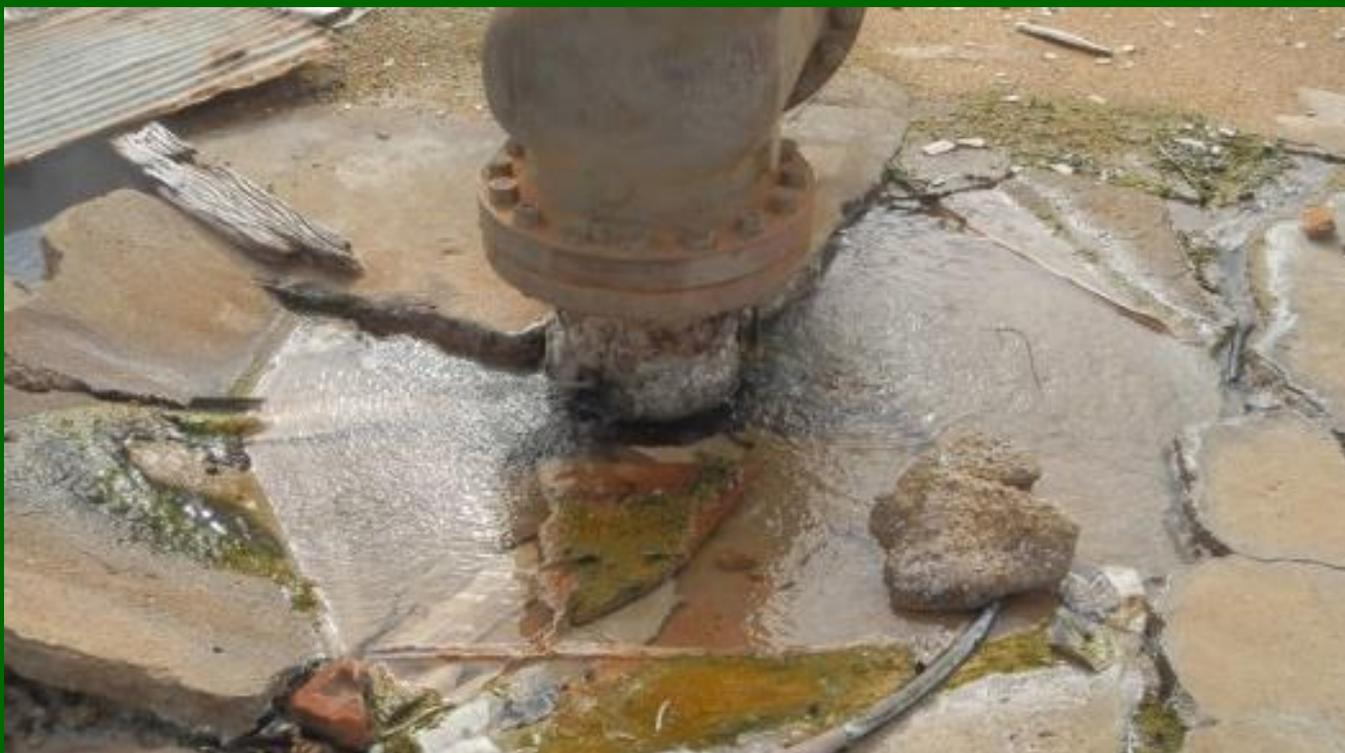


Área de recarga do Aquífero Guarani



SOS Cuesta de Botucatu

Poço BR – Presidente Epitácio



Formação Botucatu (Cretáceo Inferior) – arenitos eólicos





CEAPLA, UNESP, Rio Claro

Planalto Ocidental

