

REDOBRAMENTO

(dobras redobradas ou superpostas)

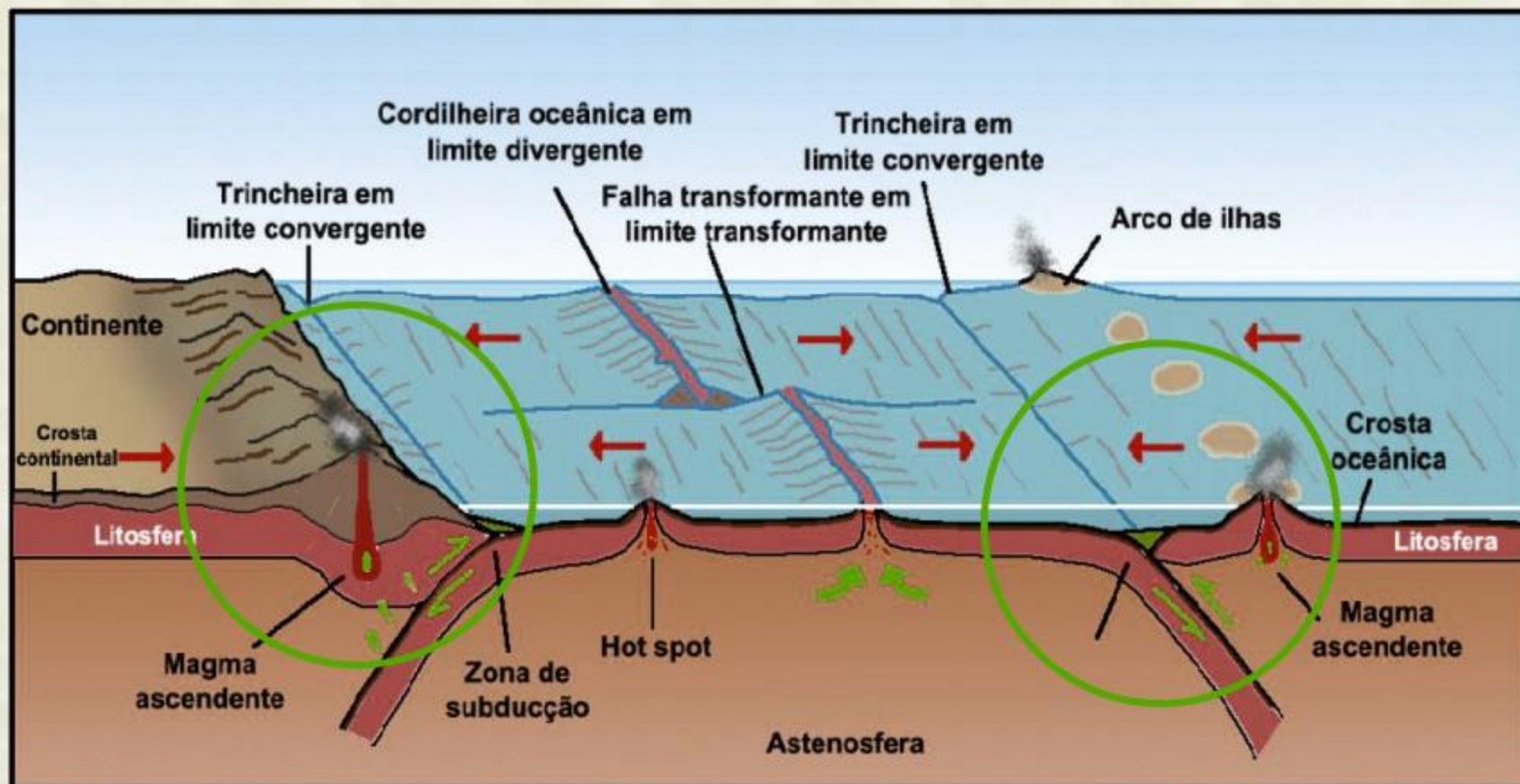
DOBRAS

INTRODUÇÃO

Definições

- Uma das feições estruturais mais evidentes (desde a escala microscópica até a quilométrica) em regiões submetidas a tensões compressivas é a DOBRA, ou seja uma superfície qualquer de referência curvada em relação à linha do horizonte.
- Dobras são ondulações tanto convexas quanto côncavas existentes em corpos originalmente planos, podendo ocorrer em rochas sedimentares, ígneas ou metamórficas.
- Em geral é uma manifestação de deformação dúctil das rochas. Formam-se sob condições variadas de stress, pressão hidrostática e temperatura.
- O fechamento de uma dobra se dá em sua curvatura máxima

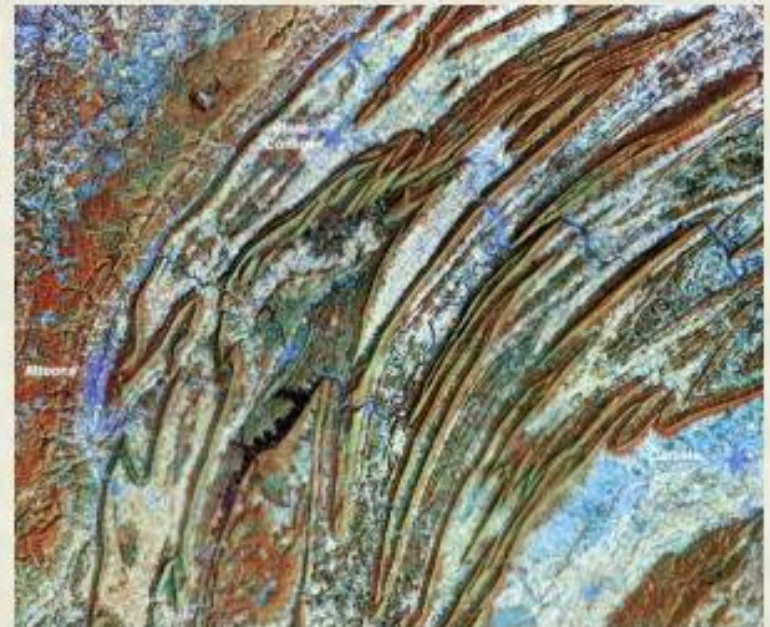
Localização de sistemas compressoriais em zonas de convergência.



Dobras são melhor observadas em zonas orogenéticas atuais ou antigas, mas eventualmente podem ocorrer em regiões intraplacas



Orógeno atual: cadeia Alpina (foto em perfil).



Orógeno antigo: Apalaches no leste dos EUA (foto em mapa).

Anticline

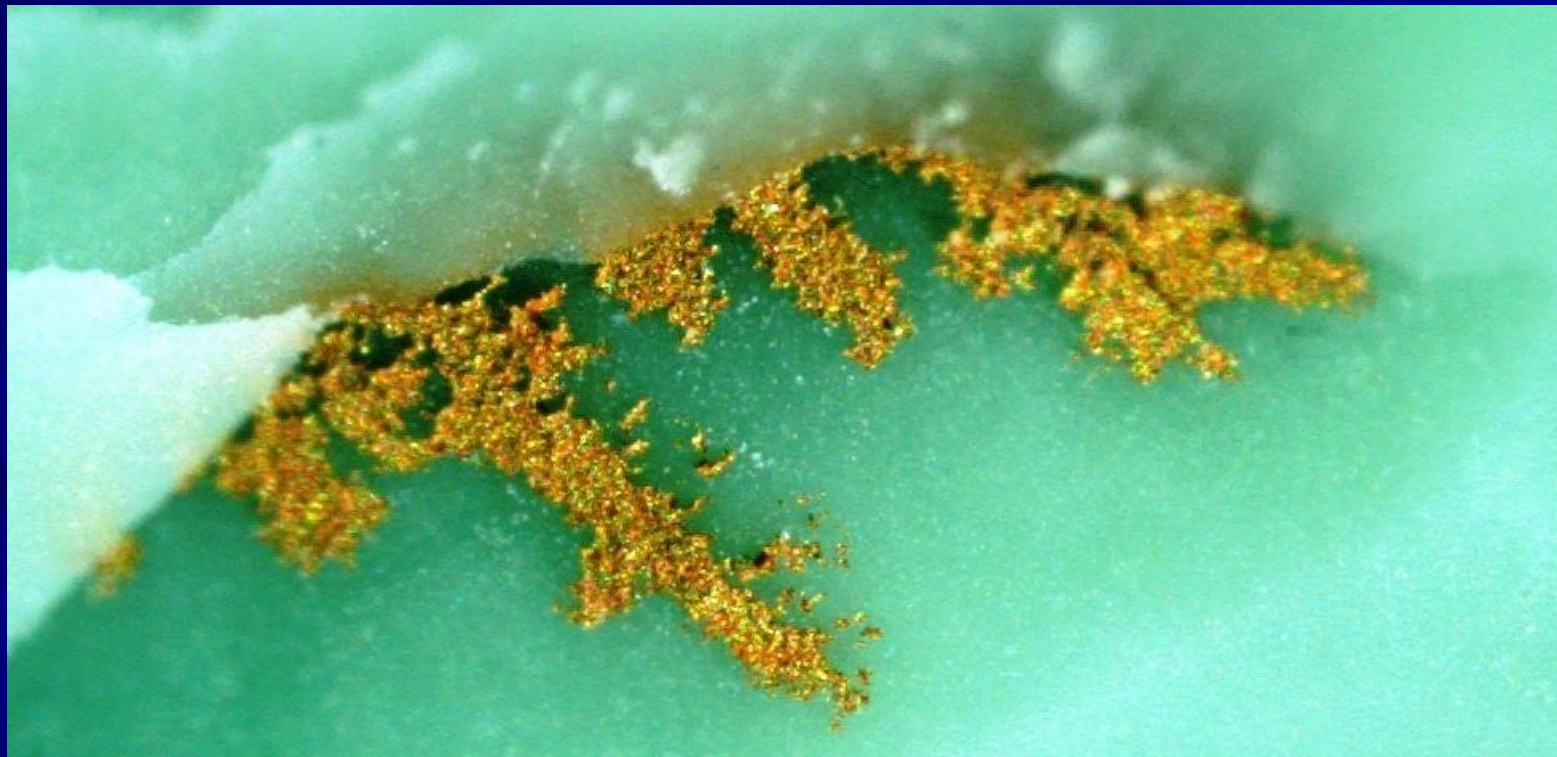
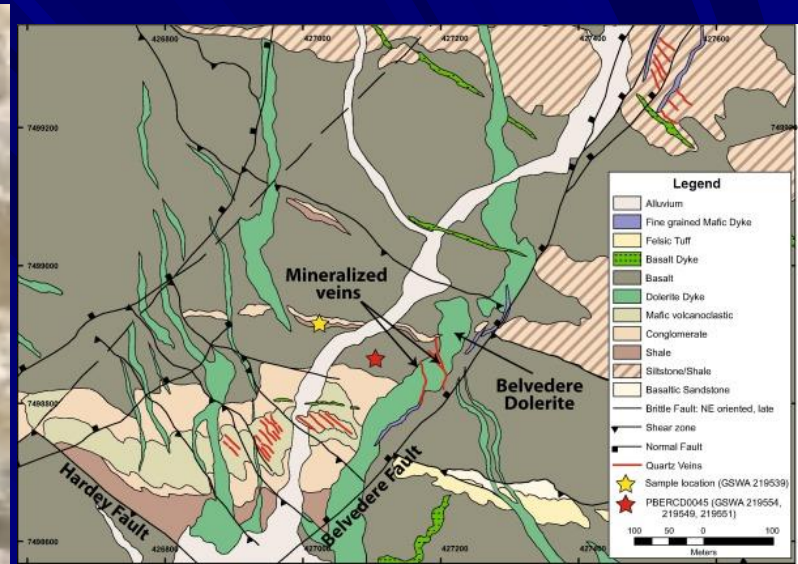
Syncline



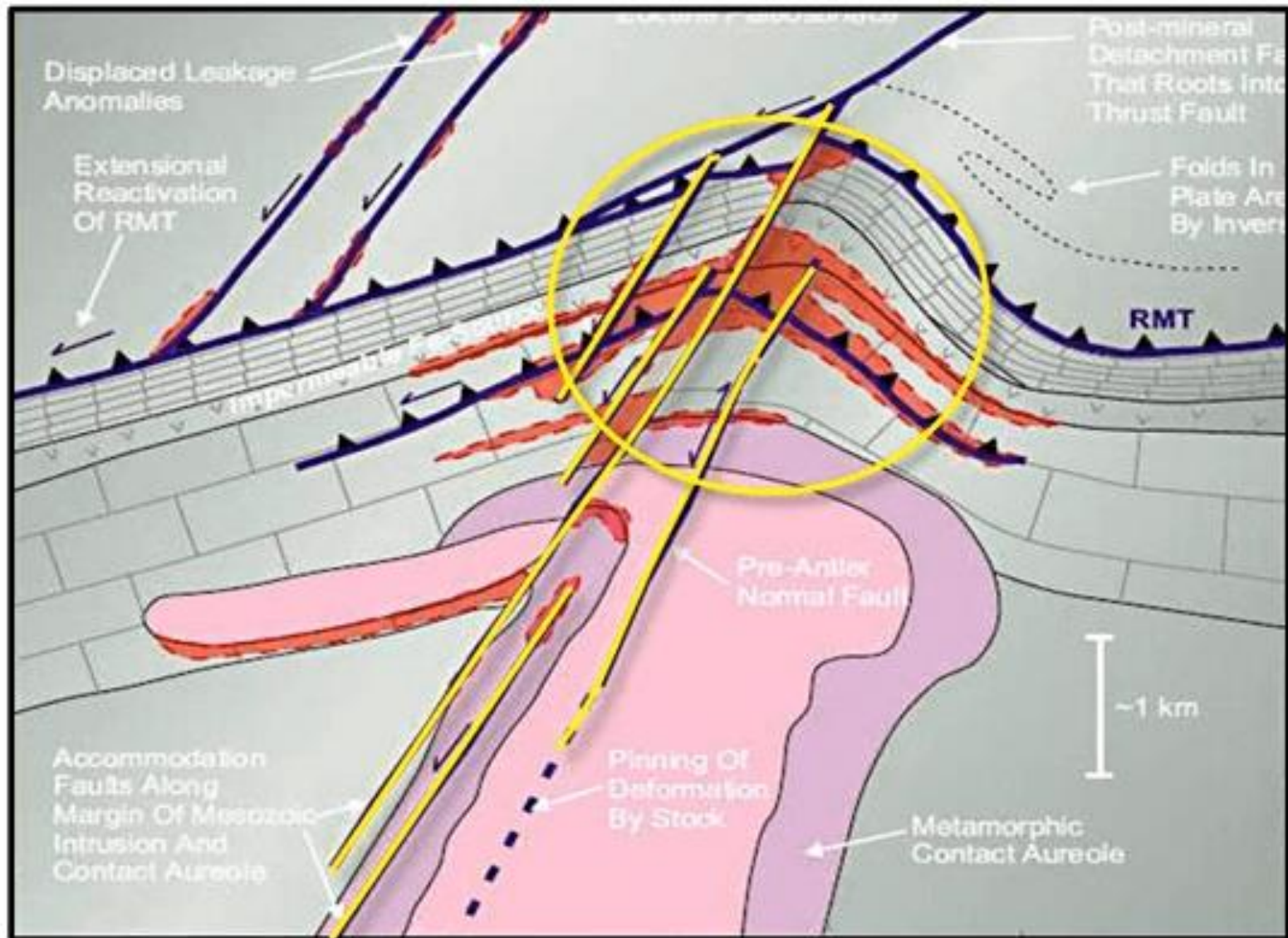








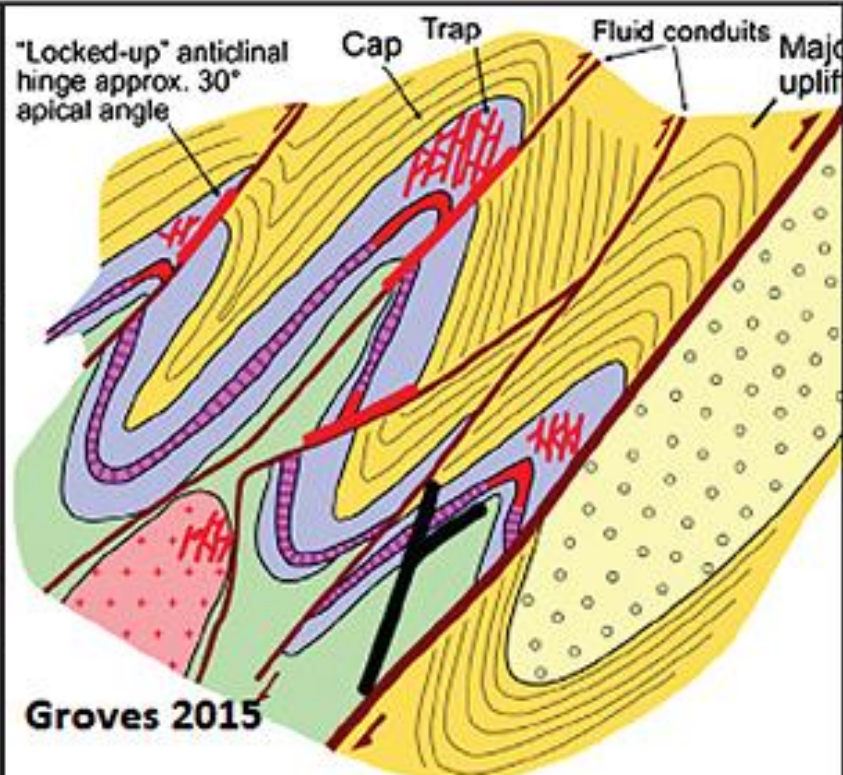
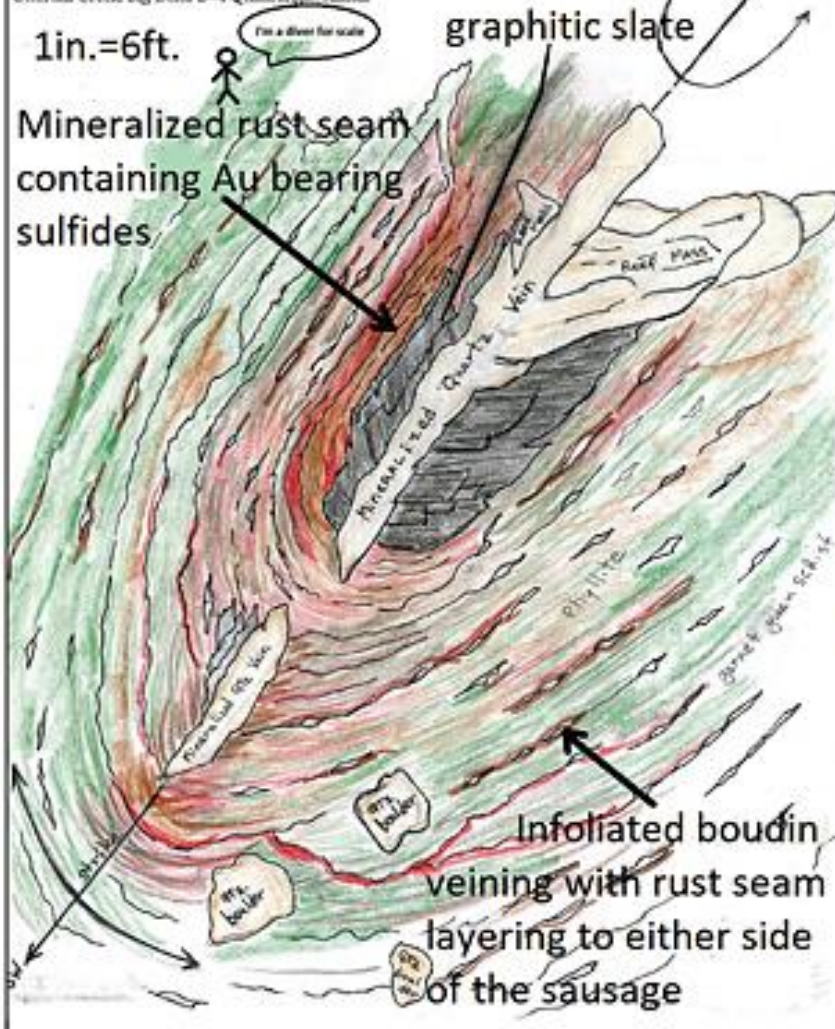
Carlin Deposits - Genetic Model



Sugar Daddy Gold Deposit lode in bedrock discovery Summer 2012

Folded syncline Vein trend and "Reef" Massive

Ottertail Creek, Big Delta D-4 Quadrangle, Alaska



Groves 2015

- Fault/shear zone
- Gold mineralization
- Lamprophyre dyke
- Granitic pluton
- Polymictic conglomerate
- Turbidite-shale
- BIF or reactive unit
- Competent Fe-rich dolomite or tholeiitic basalt
- Less-competent ultramylonite, basalt or felsic volcanic rocks

(Left) Figure 4. A diver's sketch of the mineralized vein formed in a fold axis at Location 3. (Right) Figure 5. Fold and fault schematic (Groves, 2015).

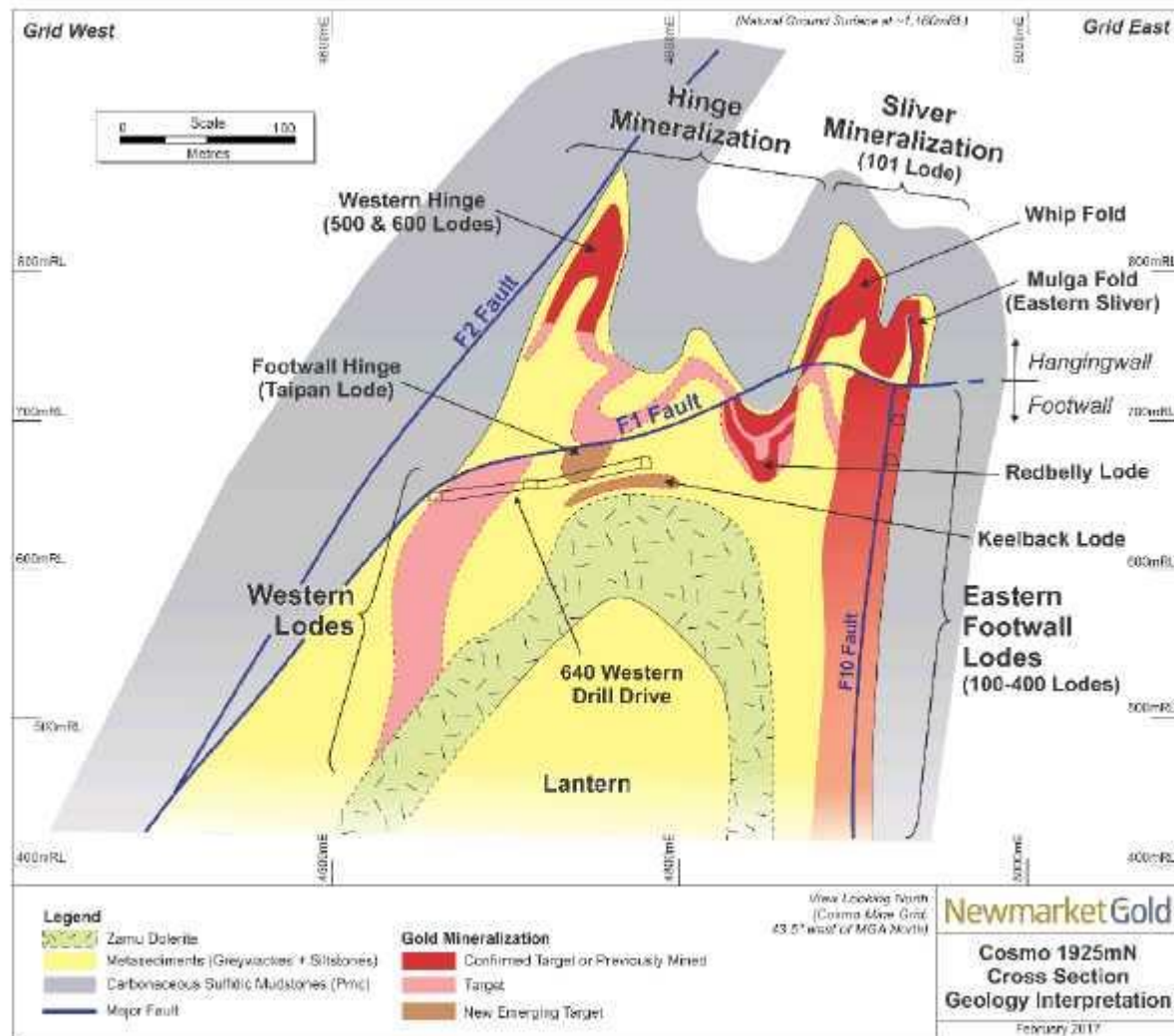
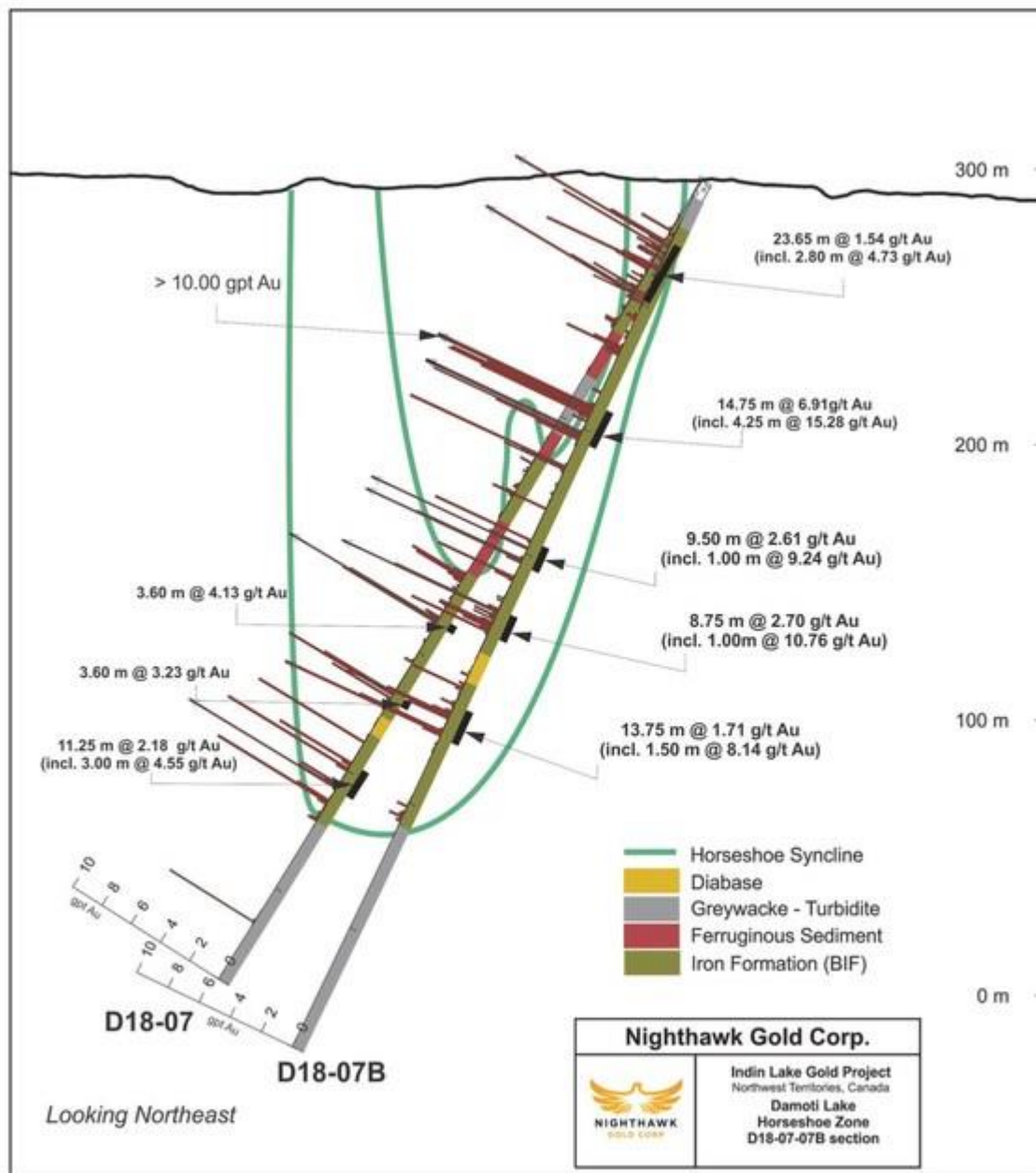
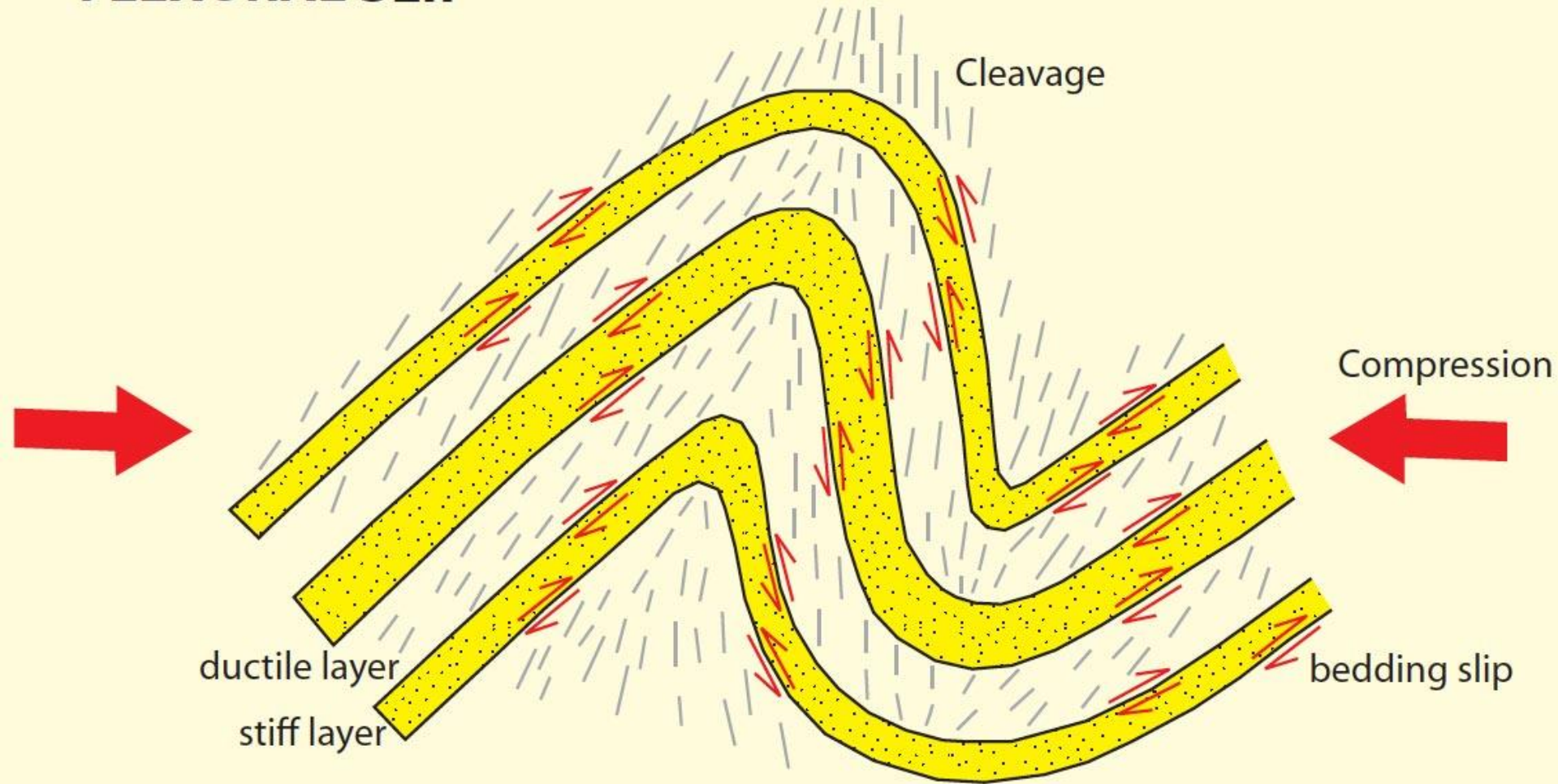


FIGURE 7-32 COSMO MINE FOOTWALL MINERALIZATION. SHOWING PLAN OF THE FOUR EASTERN LODES



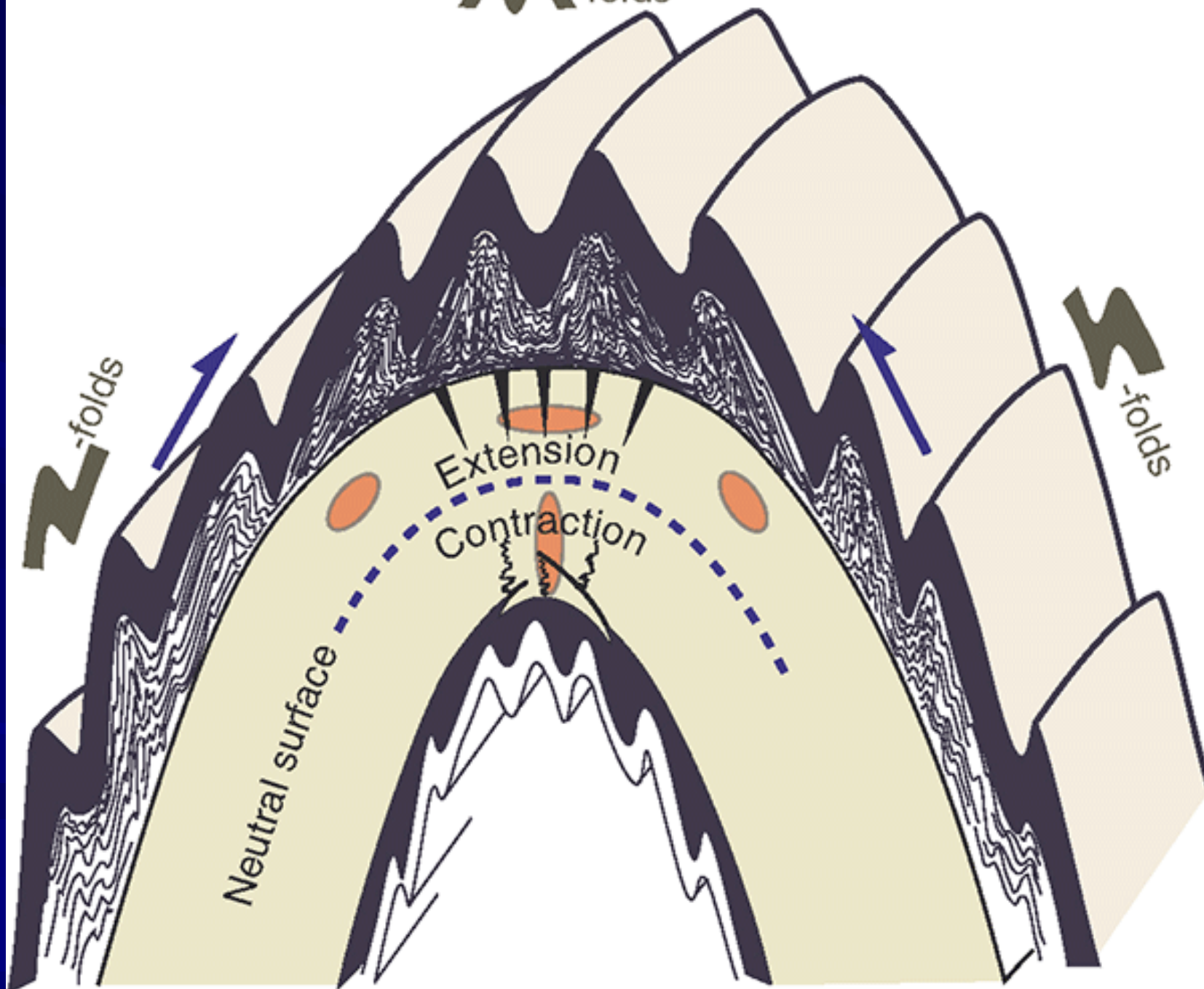
FLEXURAL SLIP



Rasoul Sorkhabi (2013)

Source: Robert Hatcher, Structural Geology (1995)

M-folds



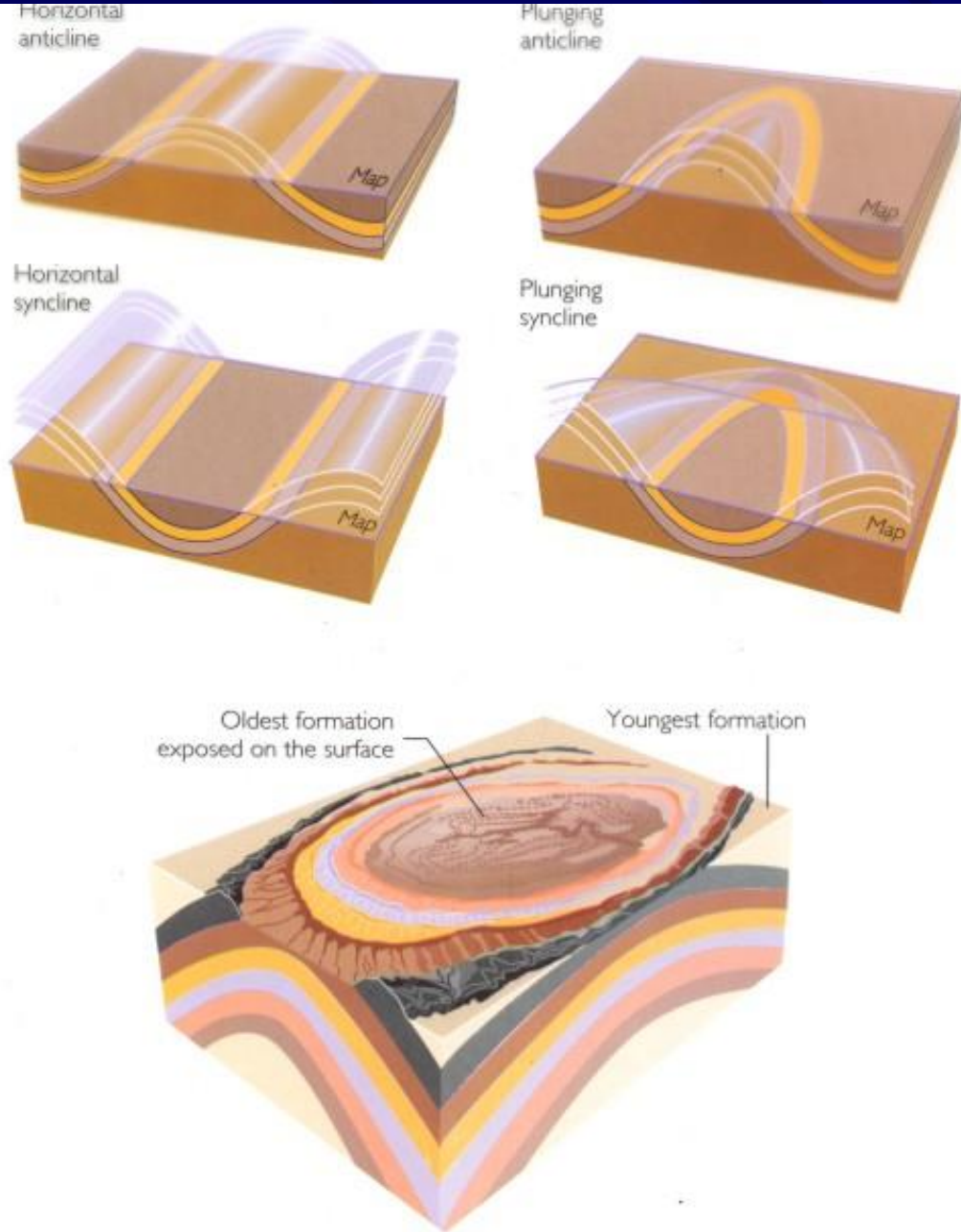
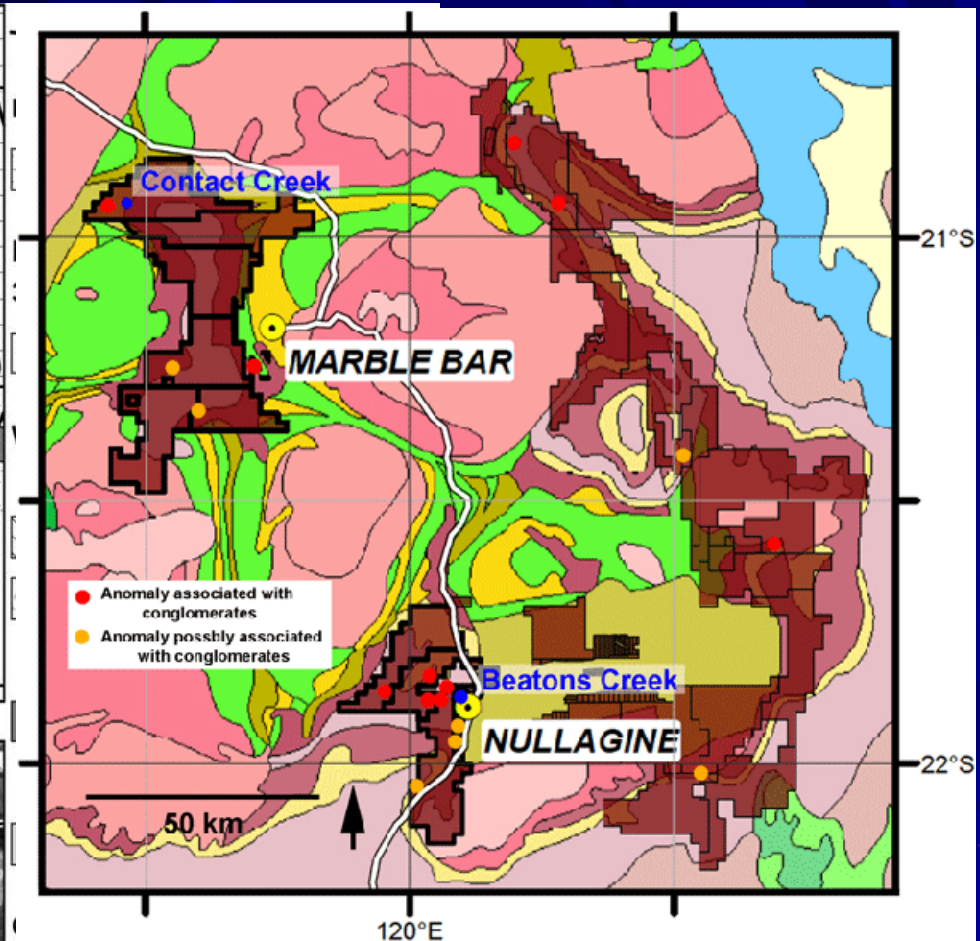
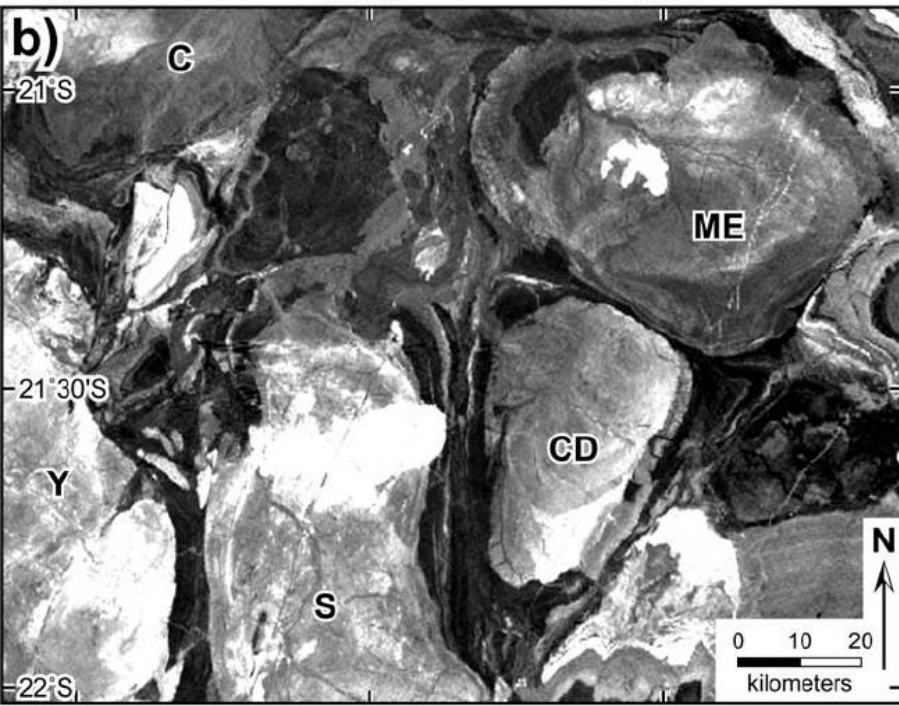
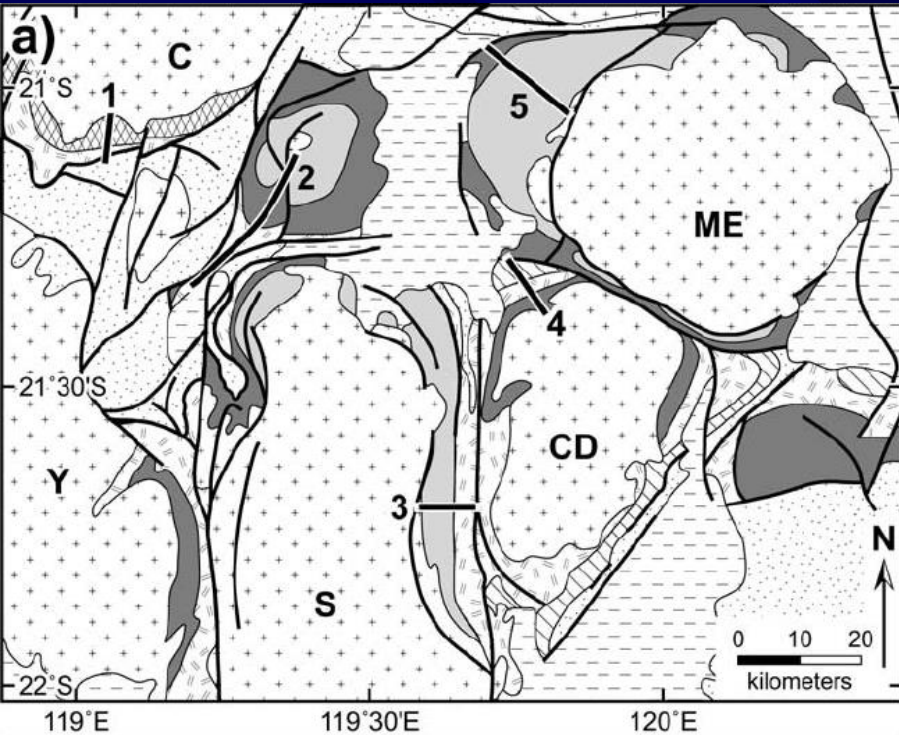


Figure 10.14, 10.16
Press and Siever: *Understanding Earth*



3515–3498 Ma
rocks (undivided)

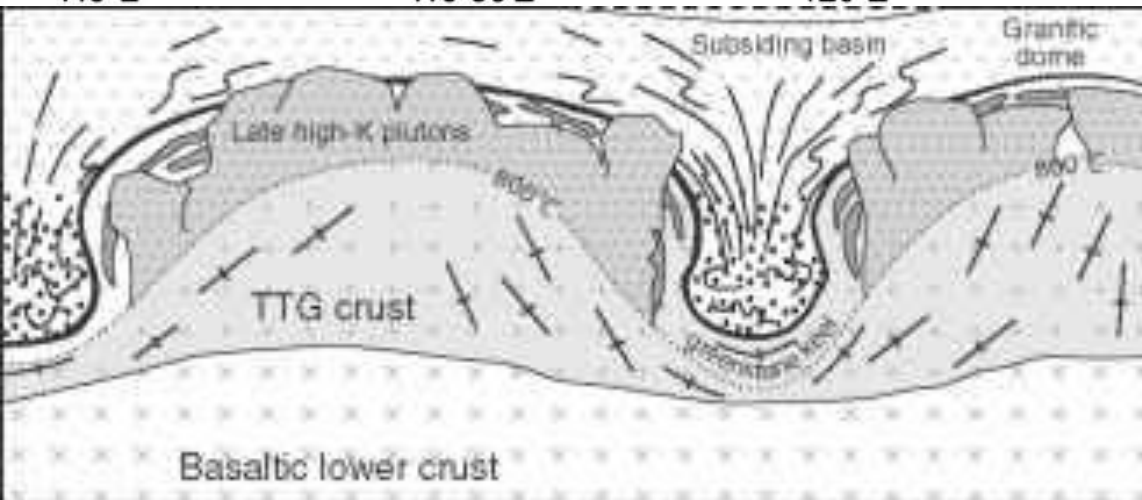
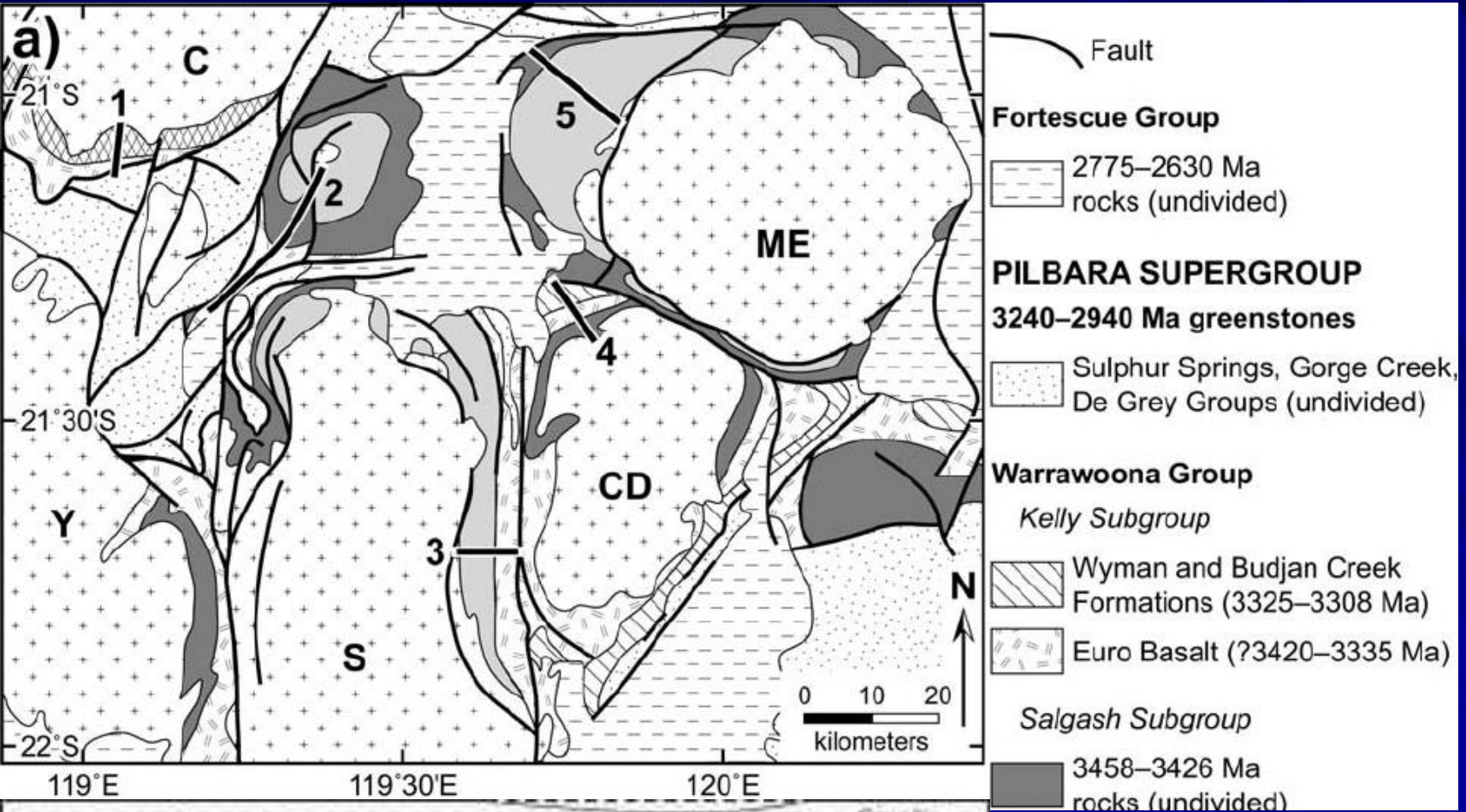
GRANITOID COMPLEXES

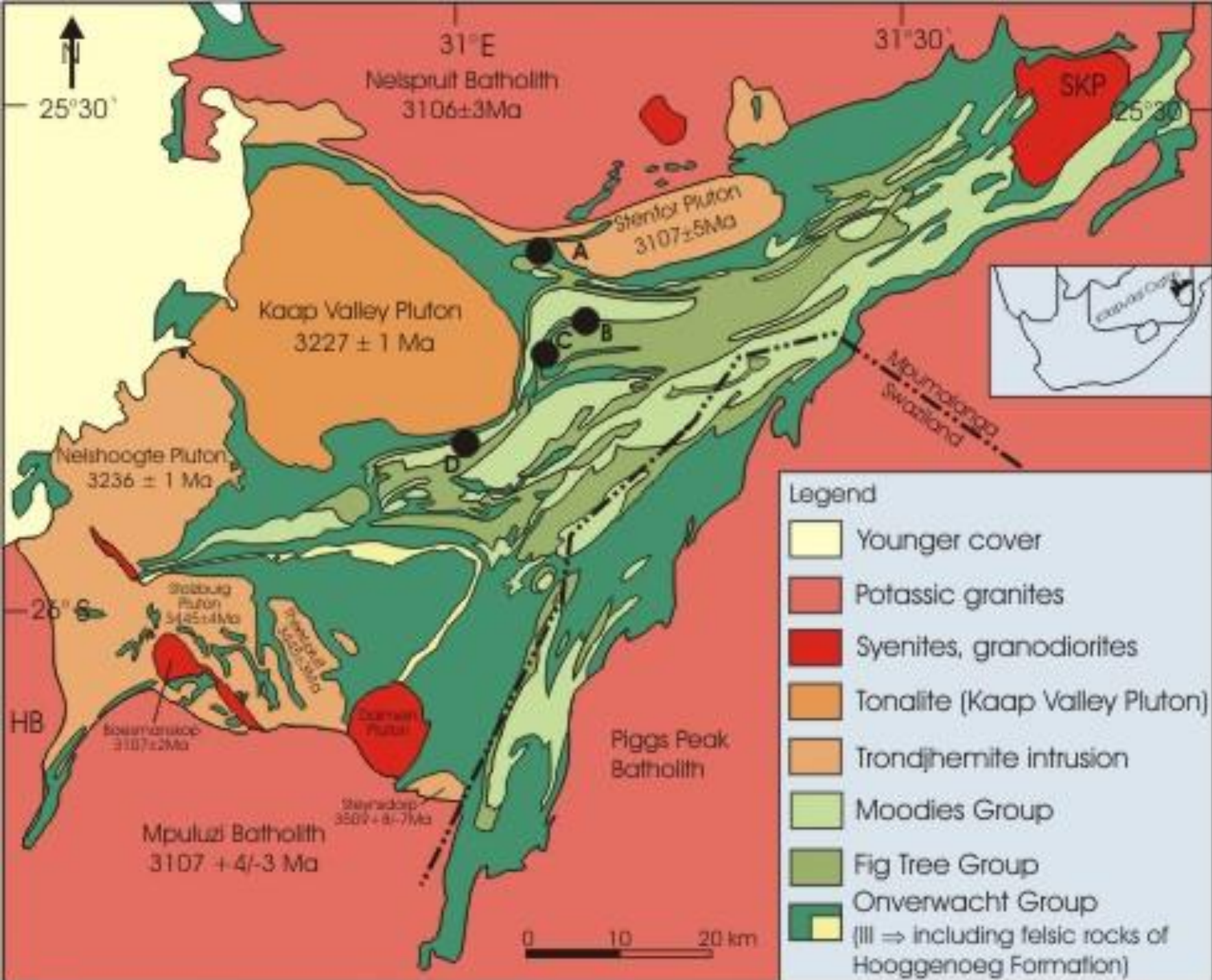
3490–2850 Ma
rocks (undivided)

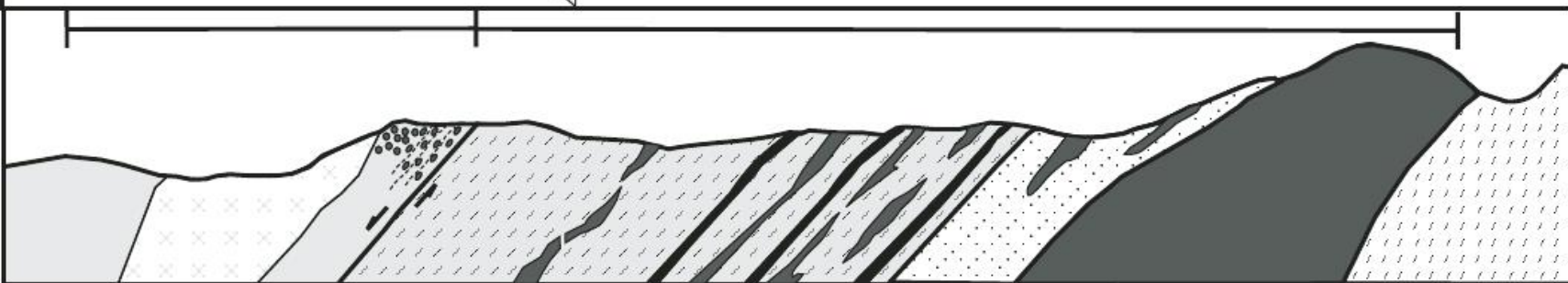
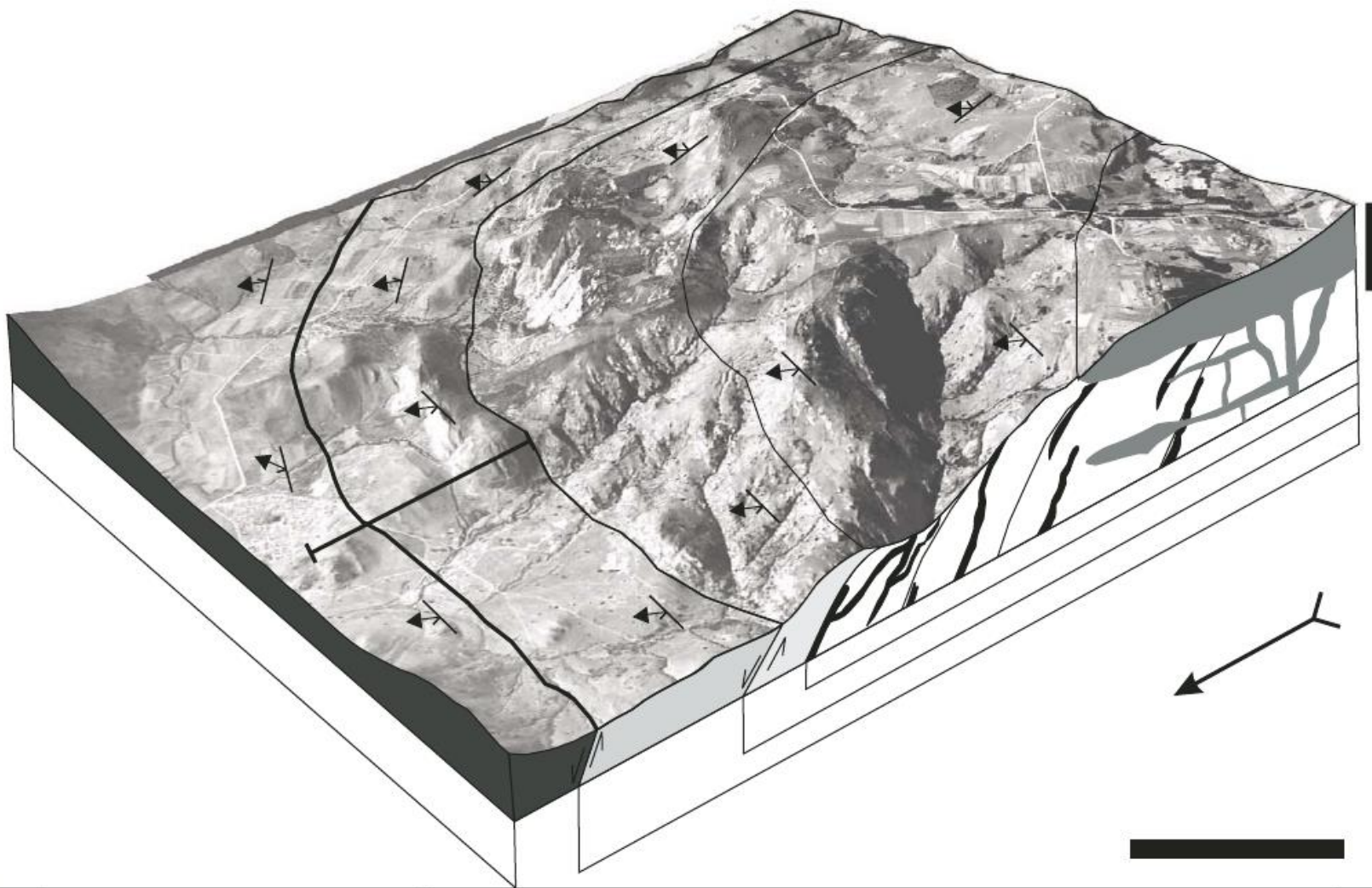
Volumetric heat production
($\mu\text{W m}^{-3}$) recalculated to 2700 Ma
(using constant $\rho = 2700 \text{ kg m}^{-3}$)

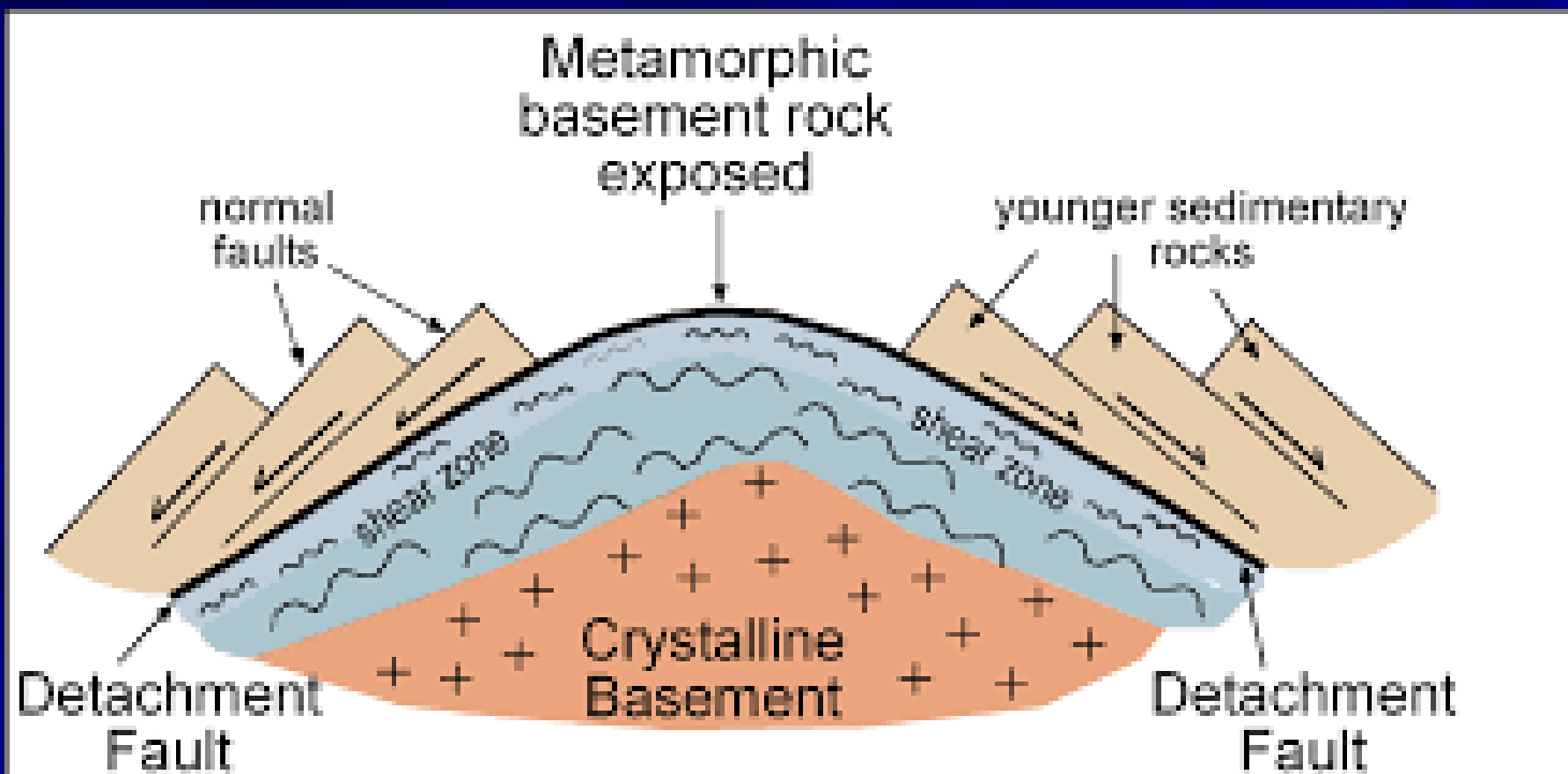
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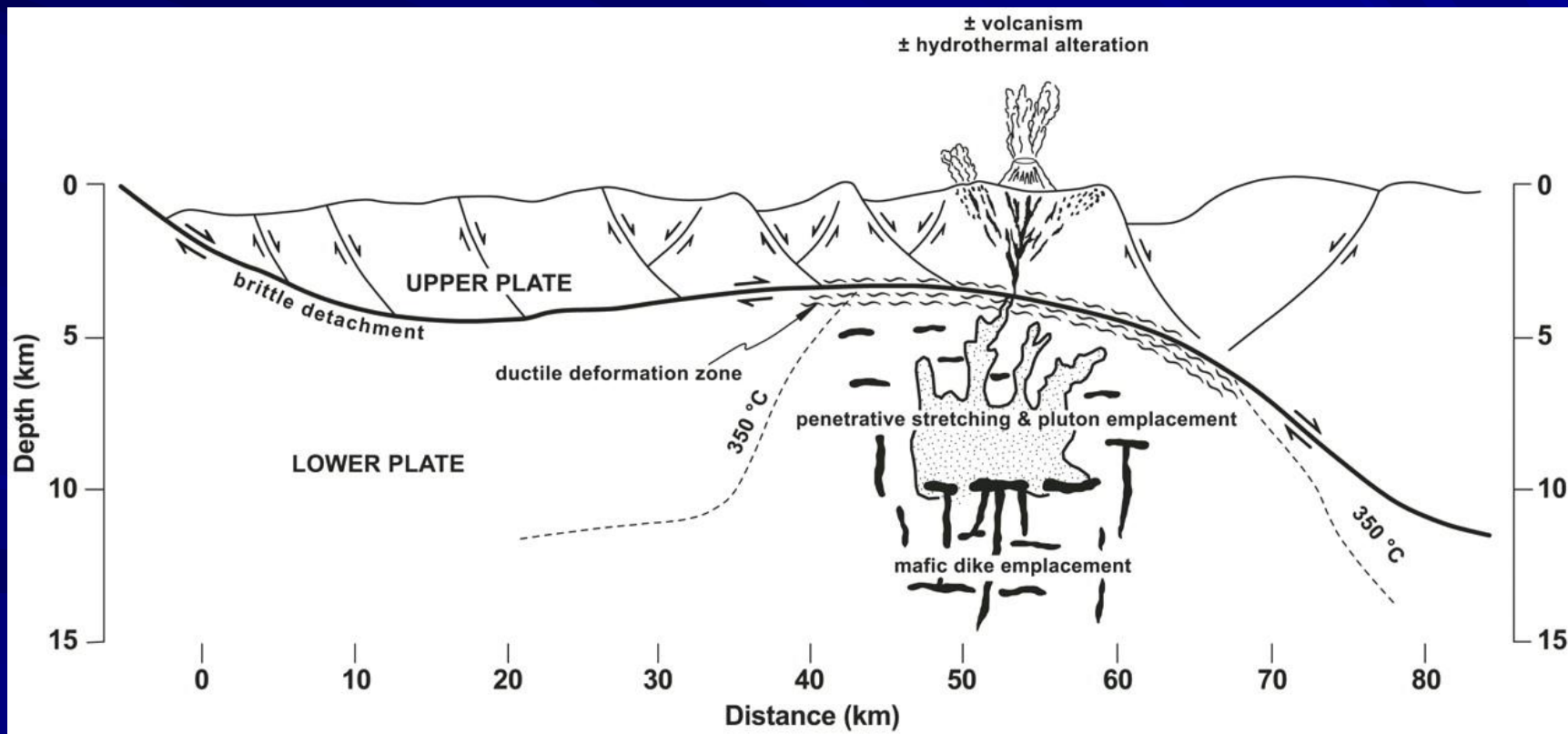




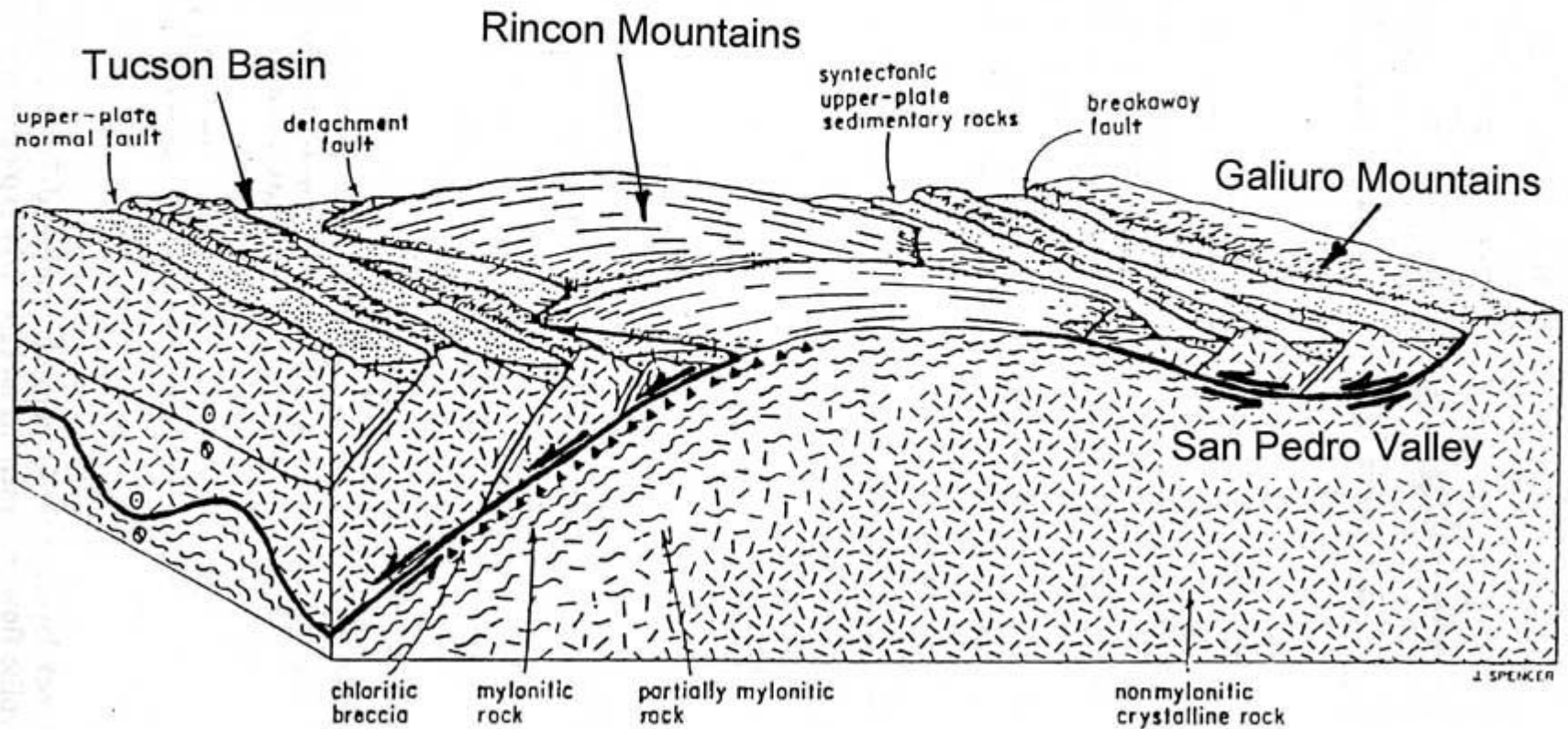




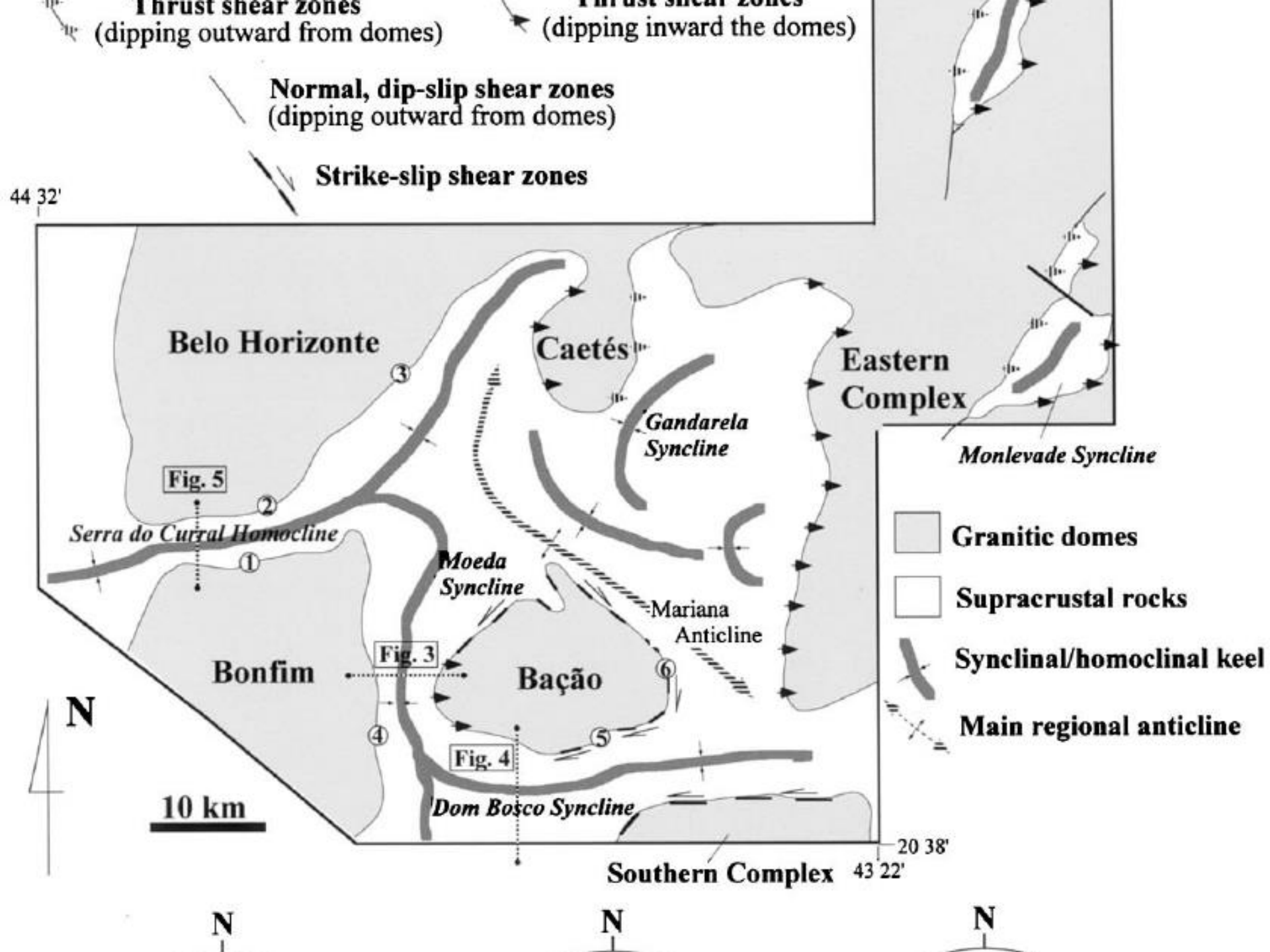


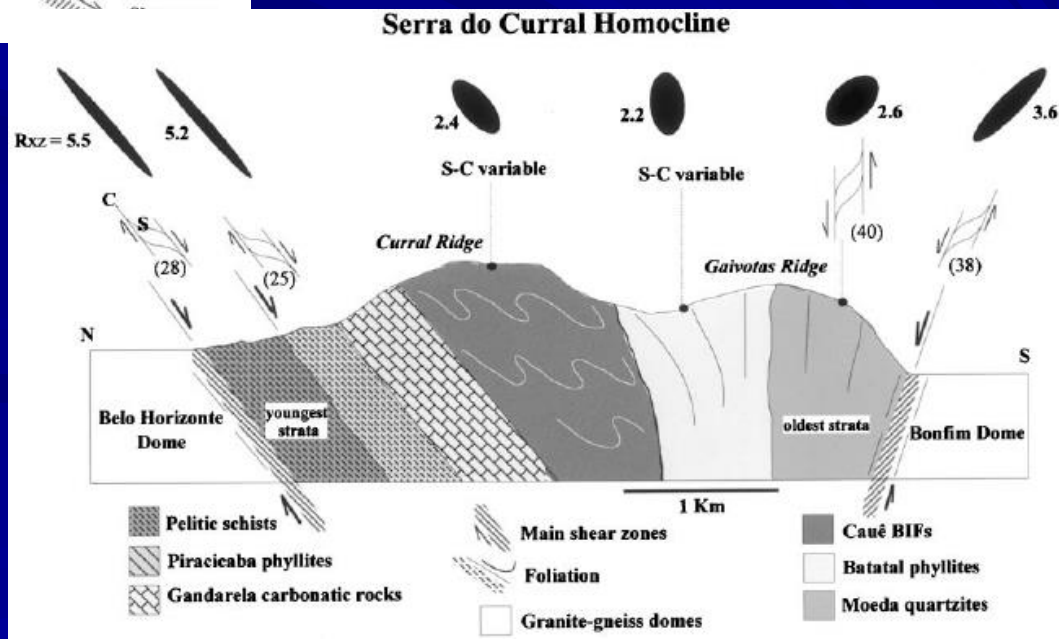
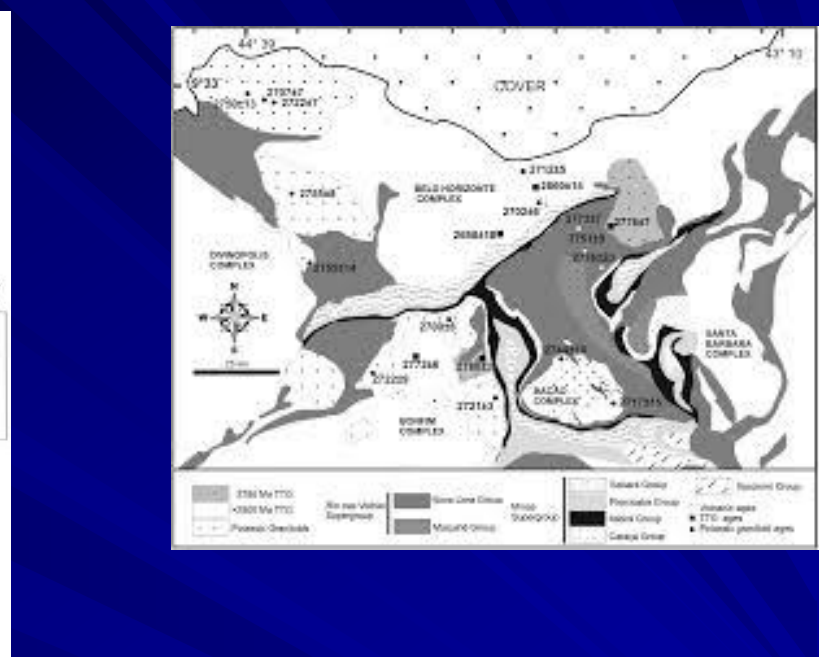


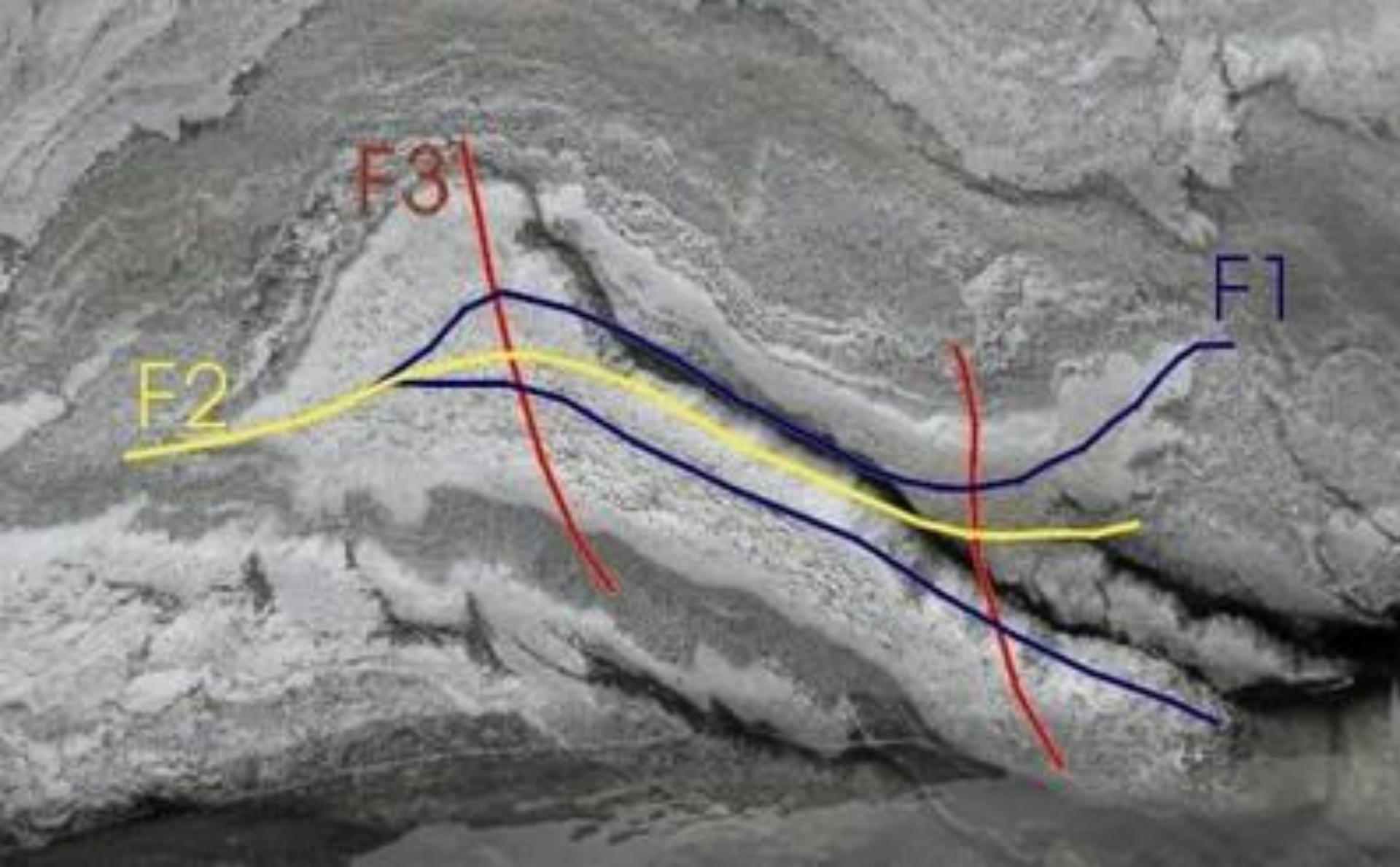
Formation of the Rincon/Santa Catalina Metamorphic Core Complex
Coincident with the eruption of the Galiuro Volcanics, 25–30 m.y. ago
(Mid-Tertiary Orogeny)



Idealized block diagram of a metamorphic core complex.

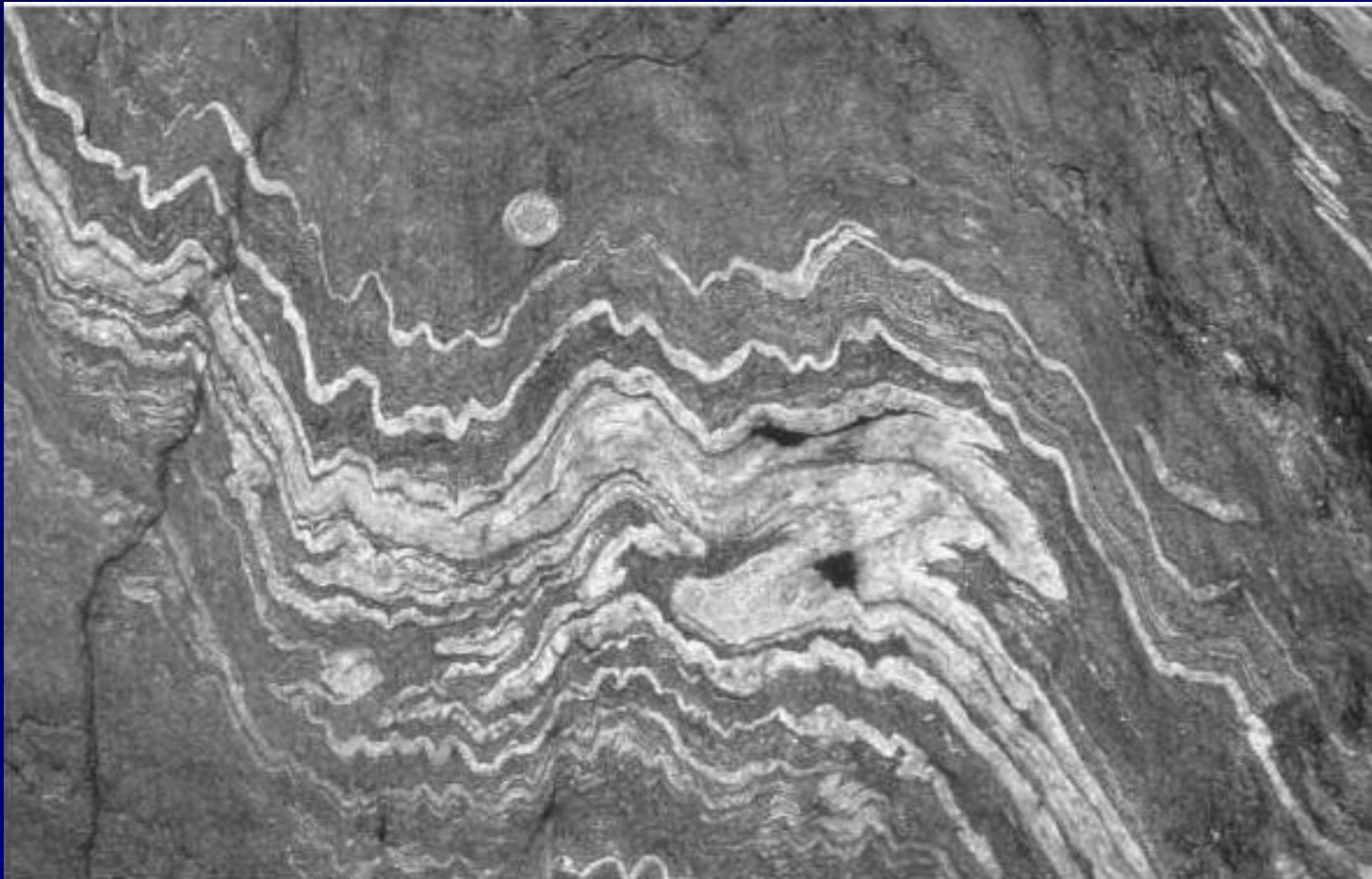












Ramsay & Huber 1987



www.uwsp.edu/



Maggia Nappes, Alpine crystalline core. O. Tobisch Photo.

Dobras superpostas

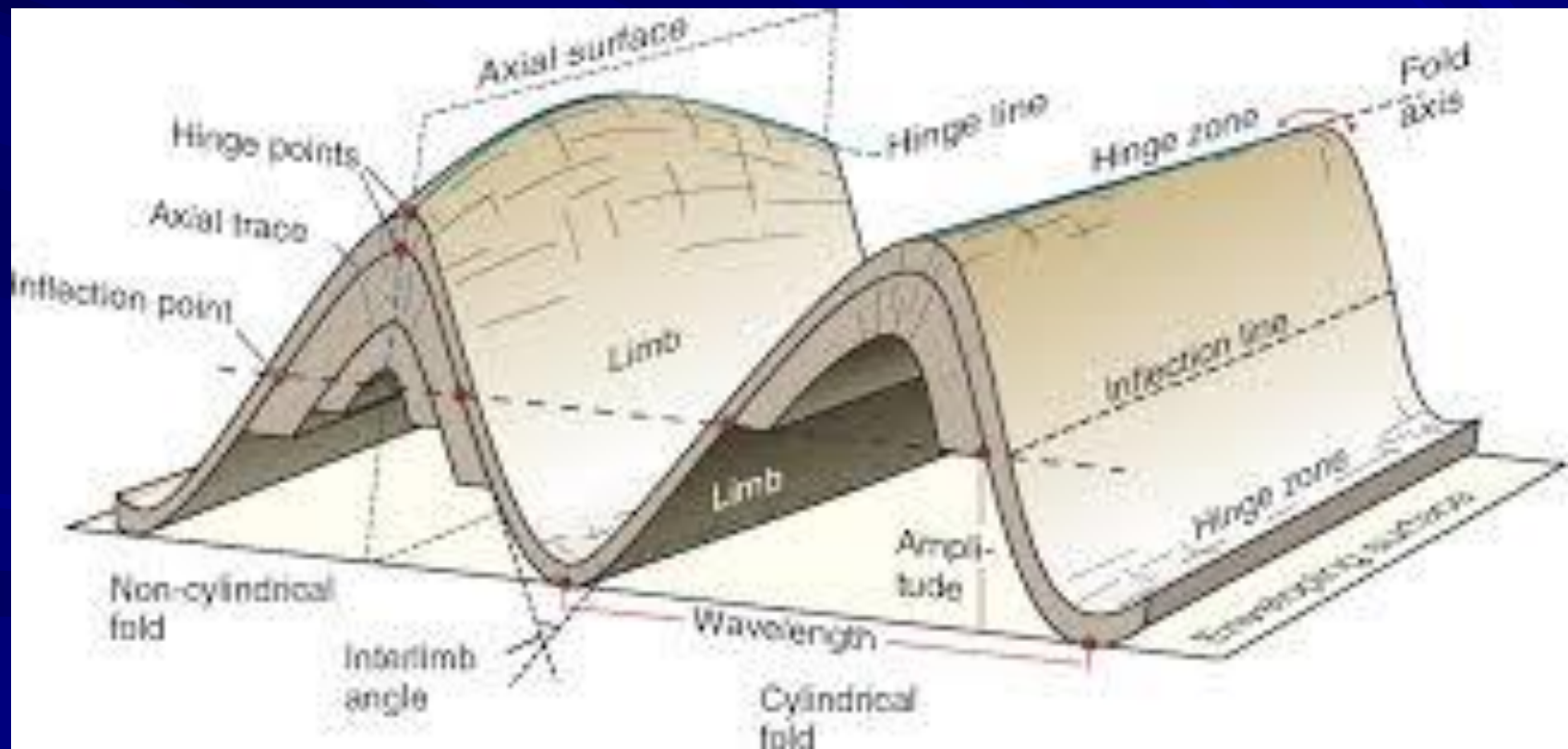
a) São reconhecidas por:

- dobras acilíndricas (análise em 3D)
- dobras c/ traço axial curvo (análise em 2D)
- padrão de interferência (dobras de mesma escala)
- foliações e lineações múltiplas
- diferentes estilos de dobras

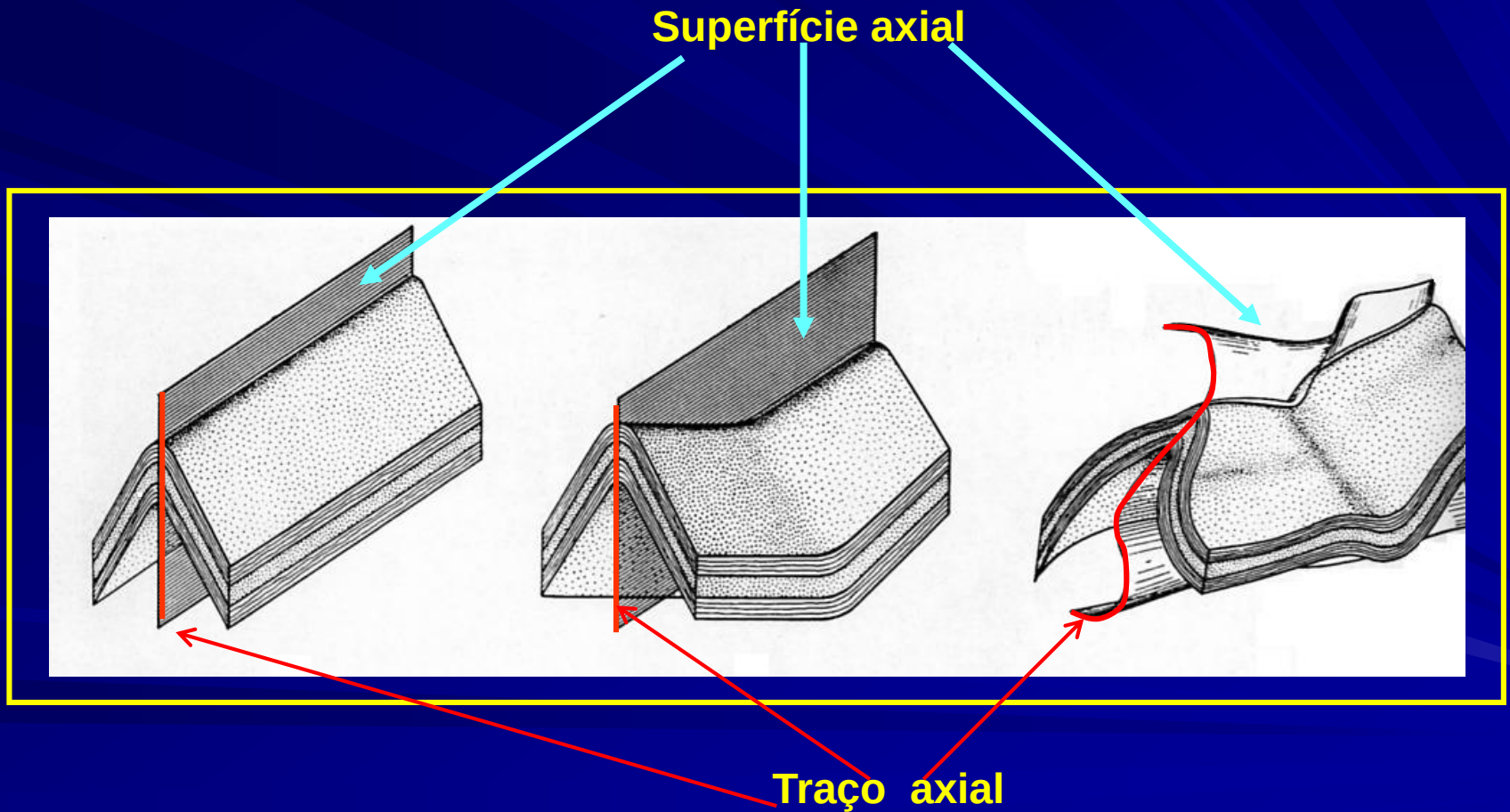
b) Resultam de:

- duas ou mais fases de deformação
- dois ou mais eventos deformacionais
- duas ou mais orogêneses

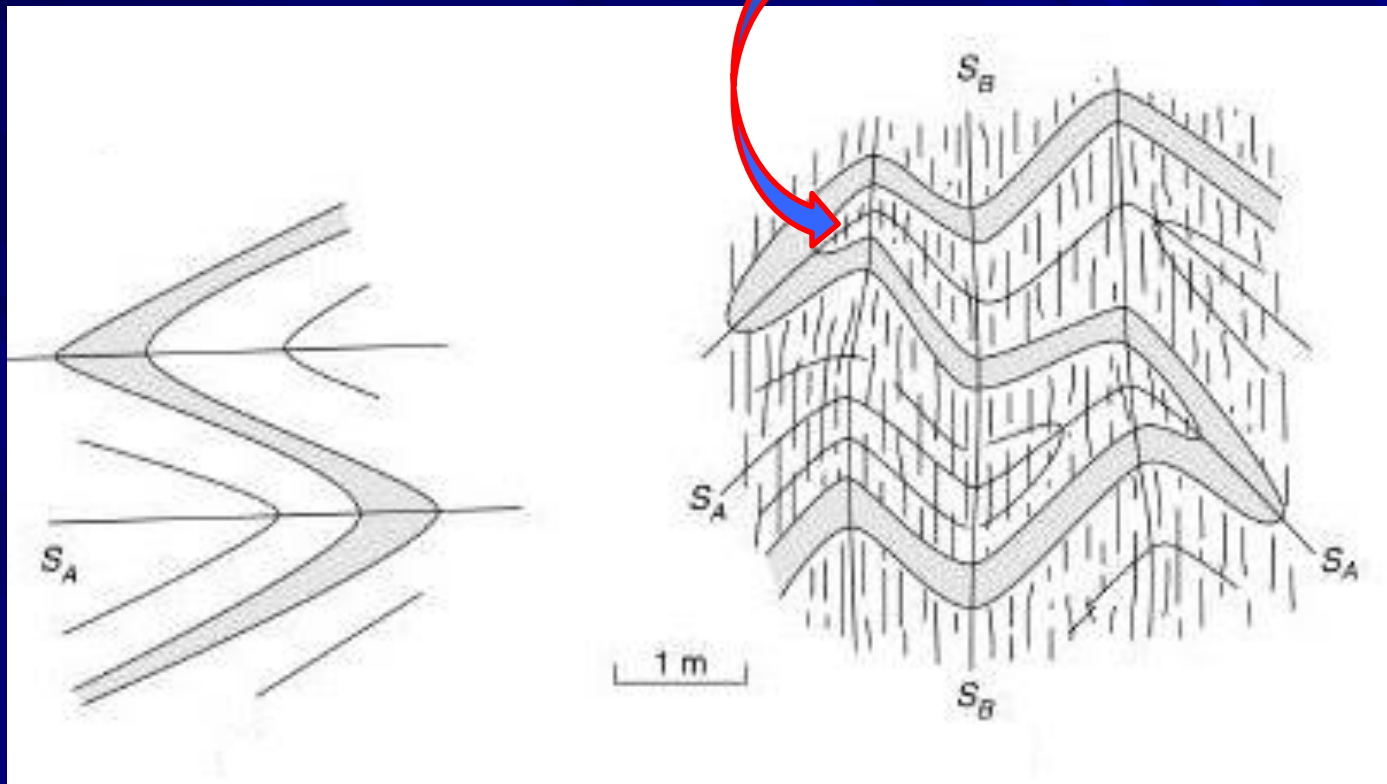
1) DOBRAS ACILÍNDRICAS (análise em 3D)



2) DOBRAS c/ TRAÇO AXIAL CURVO



2) DOBRAS c/ TRAÇO AXIAL CURVO (análise em 2D)



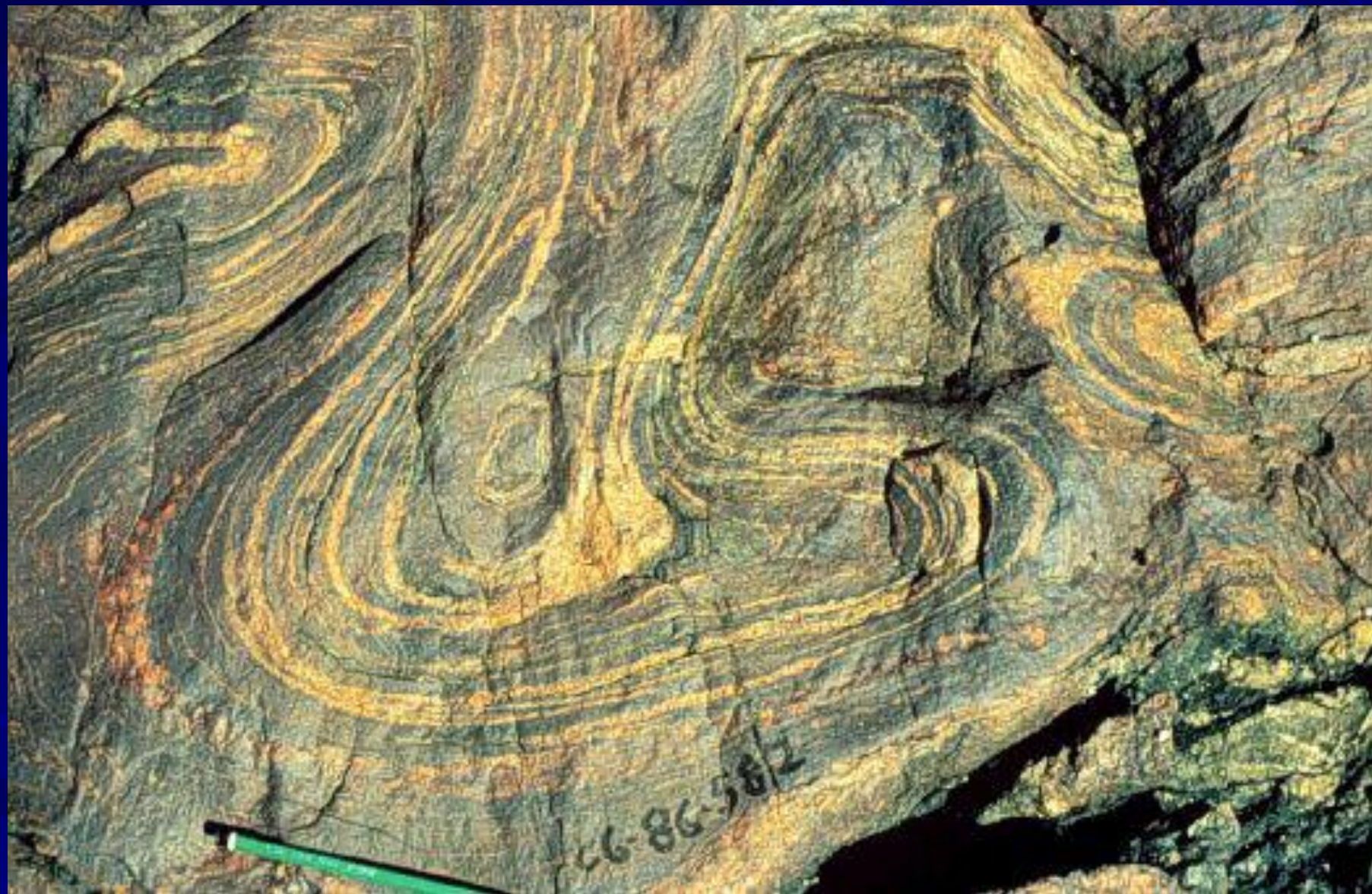
TRAÇO AXIAL CURVO (análise em 2D)



hornblenda, biotita gnaisses – Suíça

Ramsay & Huber 1987

3) PADRÕES DE INTERFERÊNCIA (RAMSAY 1967)



Tipo 1
(domo e bacia ou caixa de ovos)



Lago Monar, Escócia

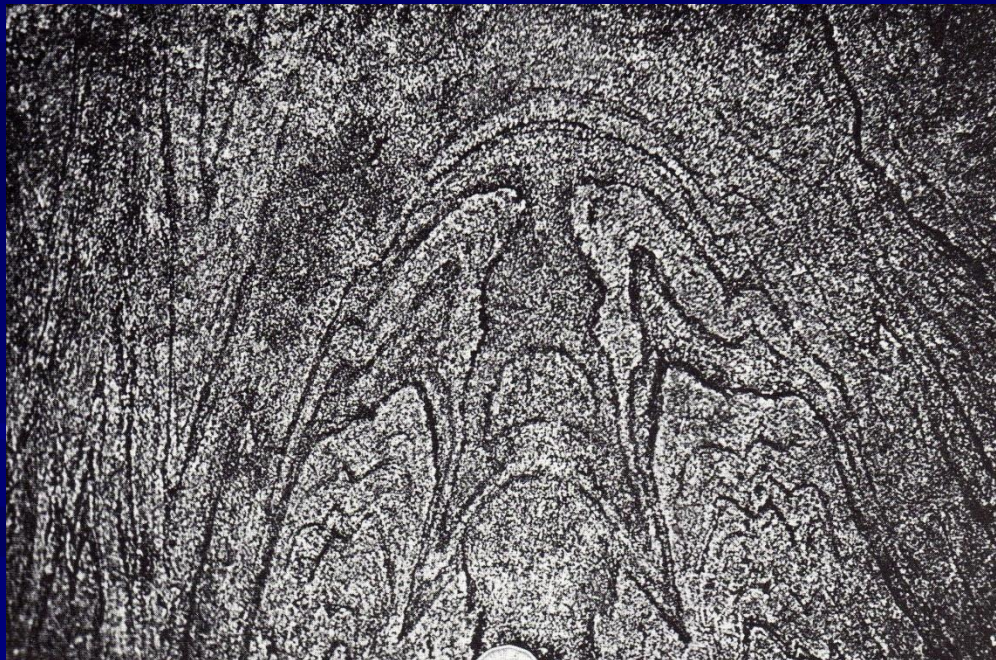
Tipo 1
(domo e bacia ou caixa de ovos)



**Tipo 2
(cogumelo)**



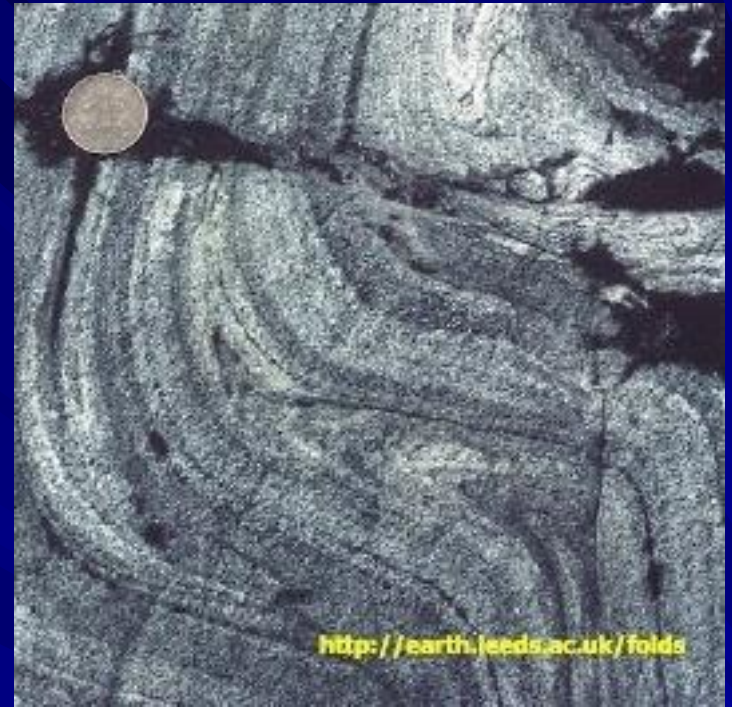
Braço de Mar Monar, Escócia



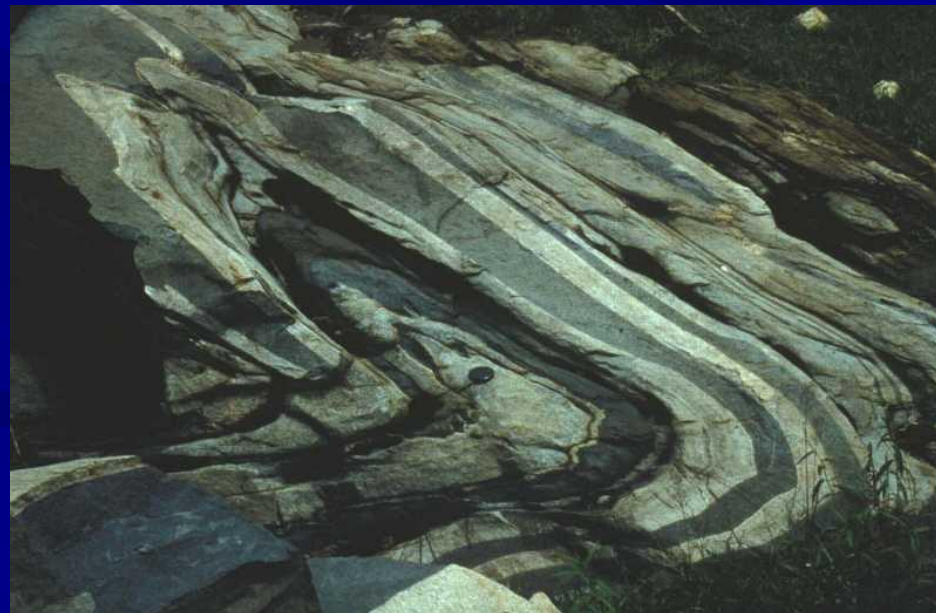
Metaarenitos – Louch Hourn, Escócia



hornblenda, biotita gnaisses - Suíça

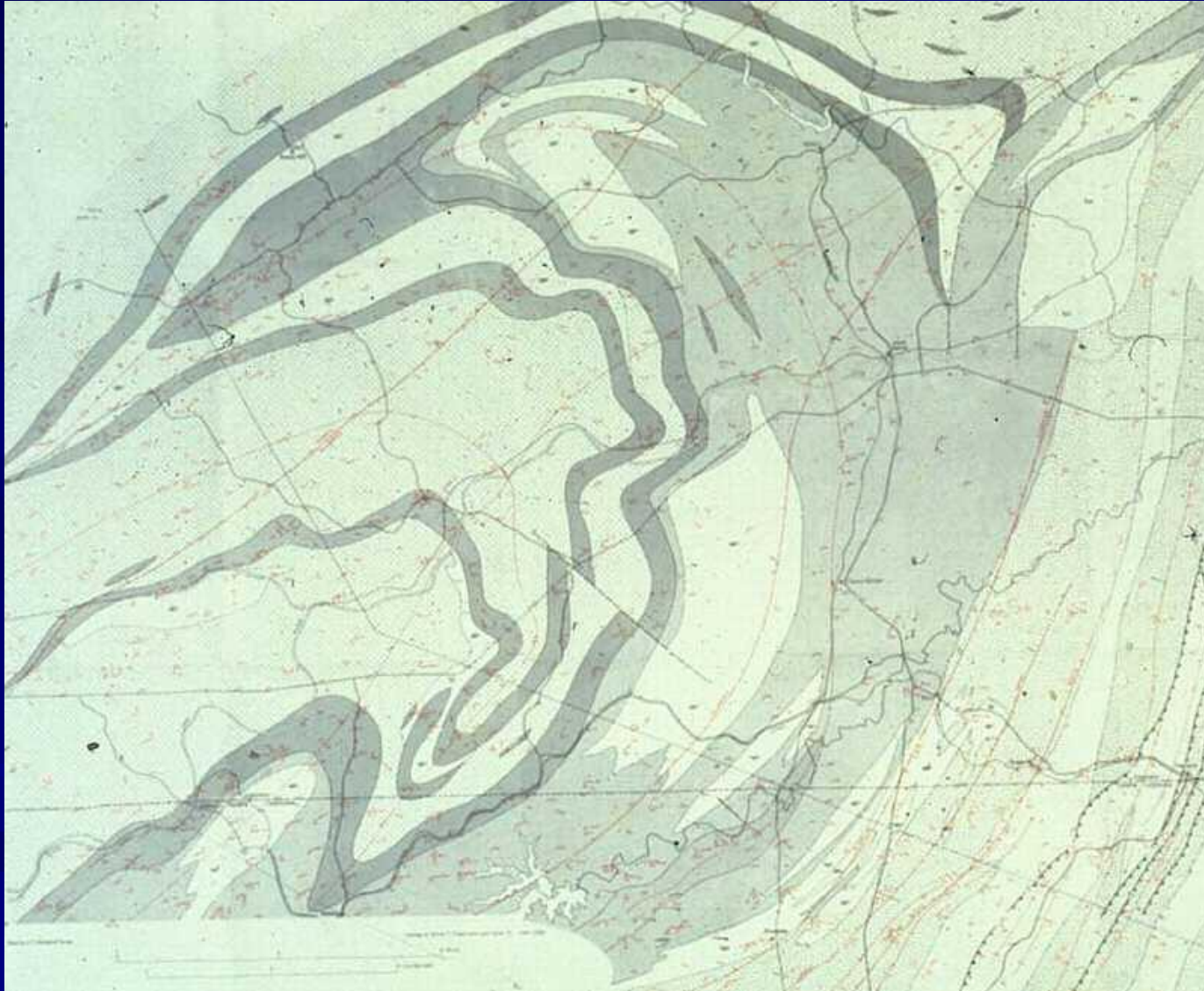


Tipo 3
(laço)



Archean of India, near Islamabad. O. Tobisch Photo.

Dobras redobradas em escala de mapa



Southern Appalachians.

Dobras superpostas

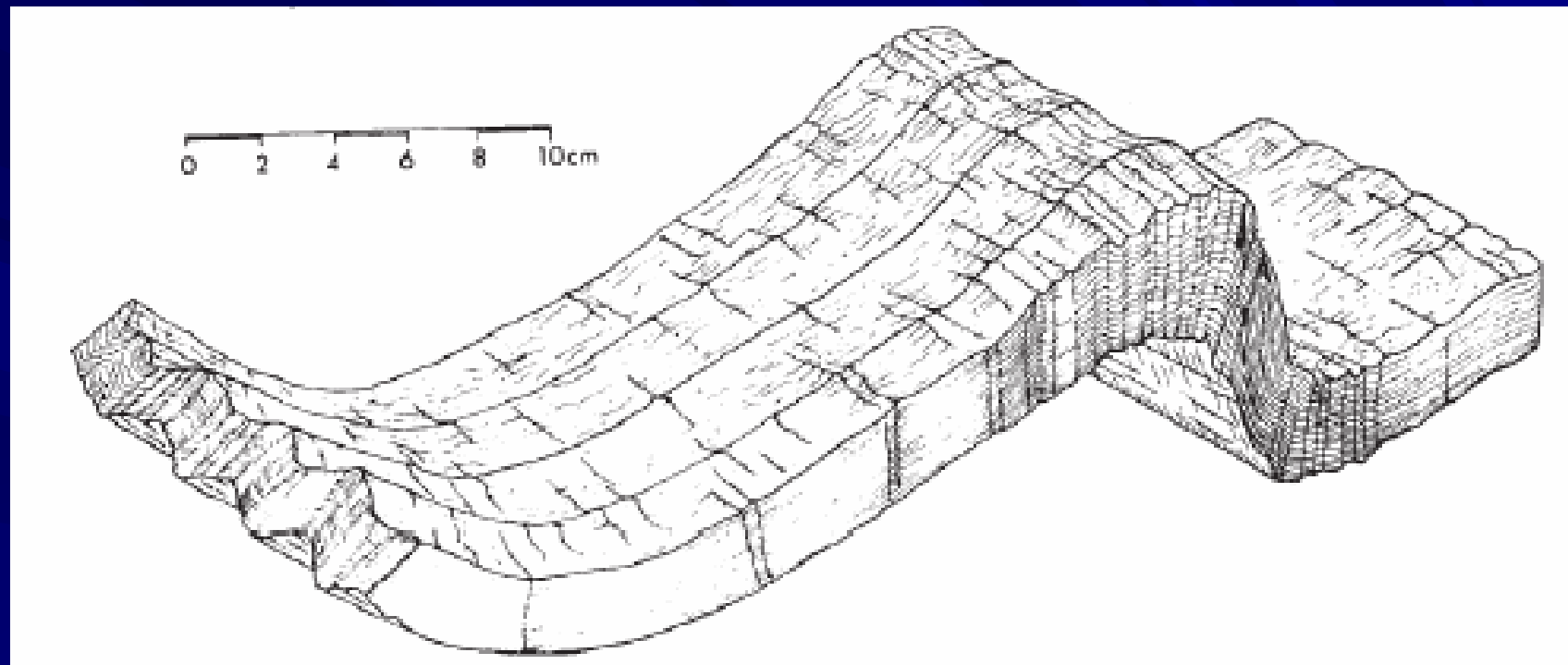
a) São reconhecidas por:

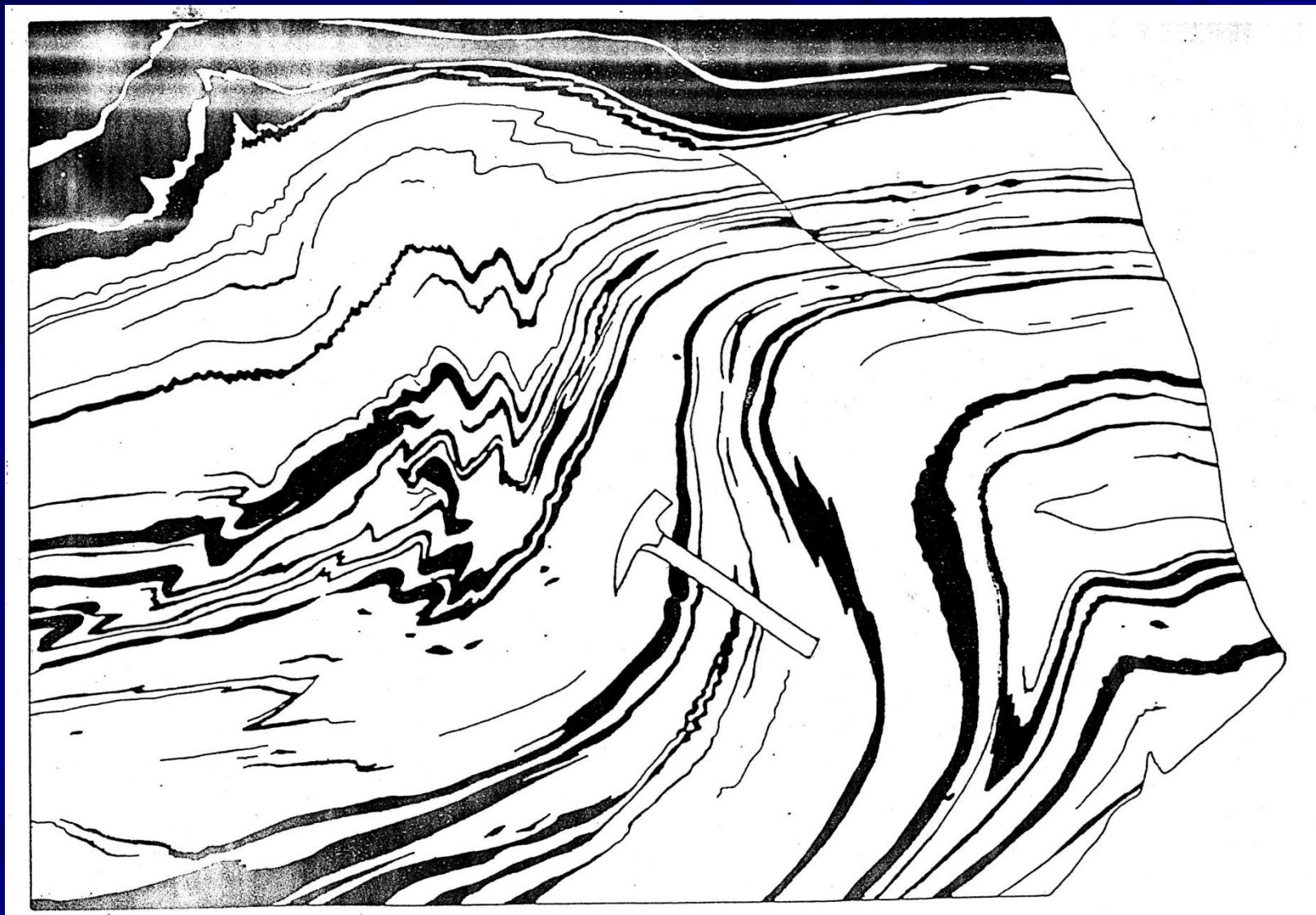
- ✓ dobras acilíndricas (análise em 3D)
- ✓ dobras c/ traço axial curvo (análise em 2D)
- ✓ padrão de interferência (dobras de mesma escala)
 - foliações e lineações múltiplas
 - diferentes estilos de dobras

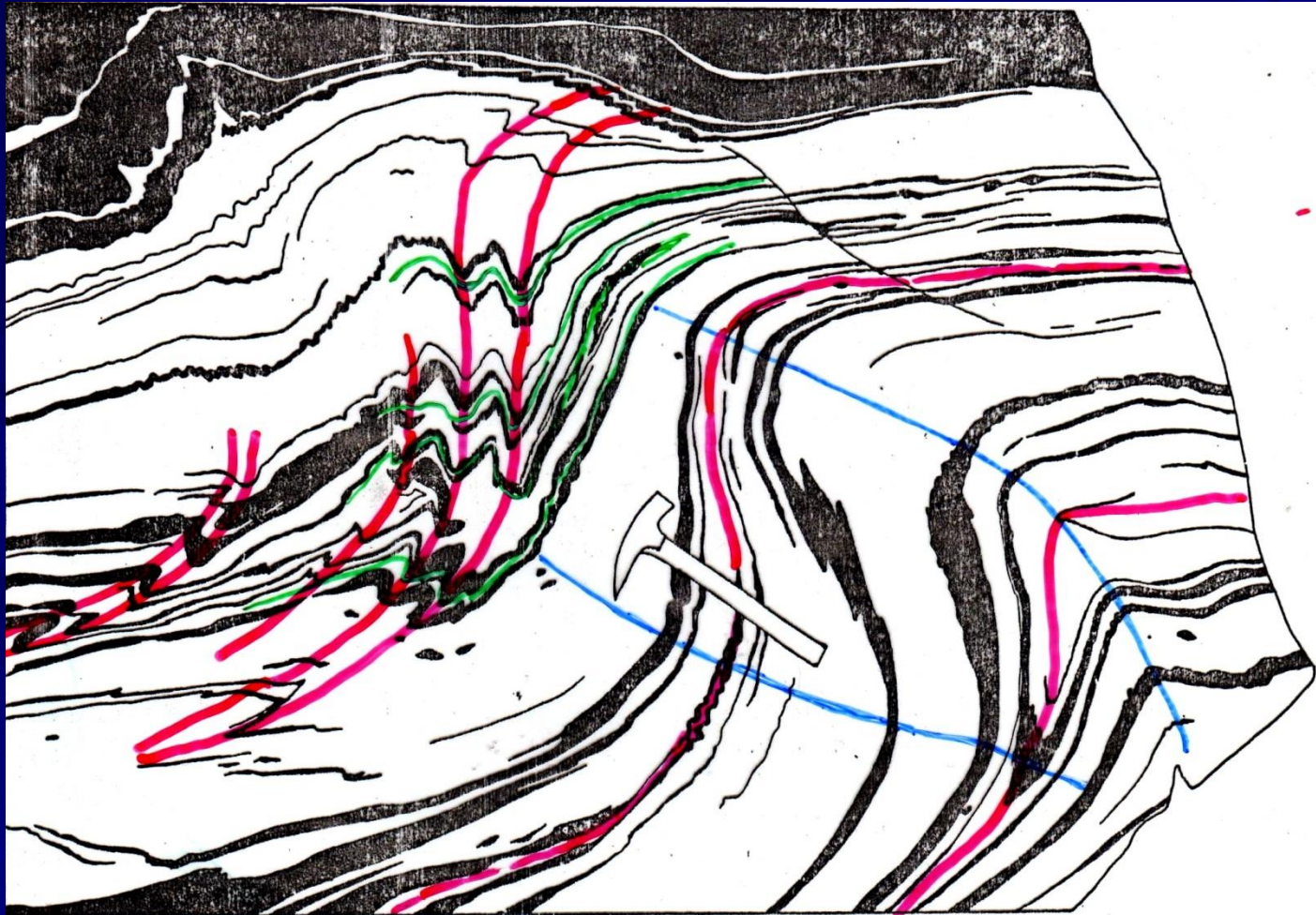
b) Resultam de:

- duas ou mais fases de deformação
- dois ou mais eventos deformacionais
- duas ou mais orogêneses

4) FOLIAÇÕES E LINEAÇÕES MÚLTIPLAS







- 3^a FASE
- 2^a FASE
- 1^a FASE

