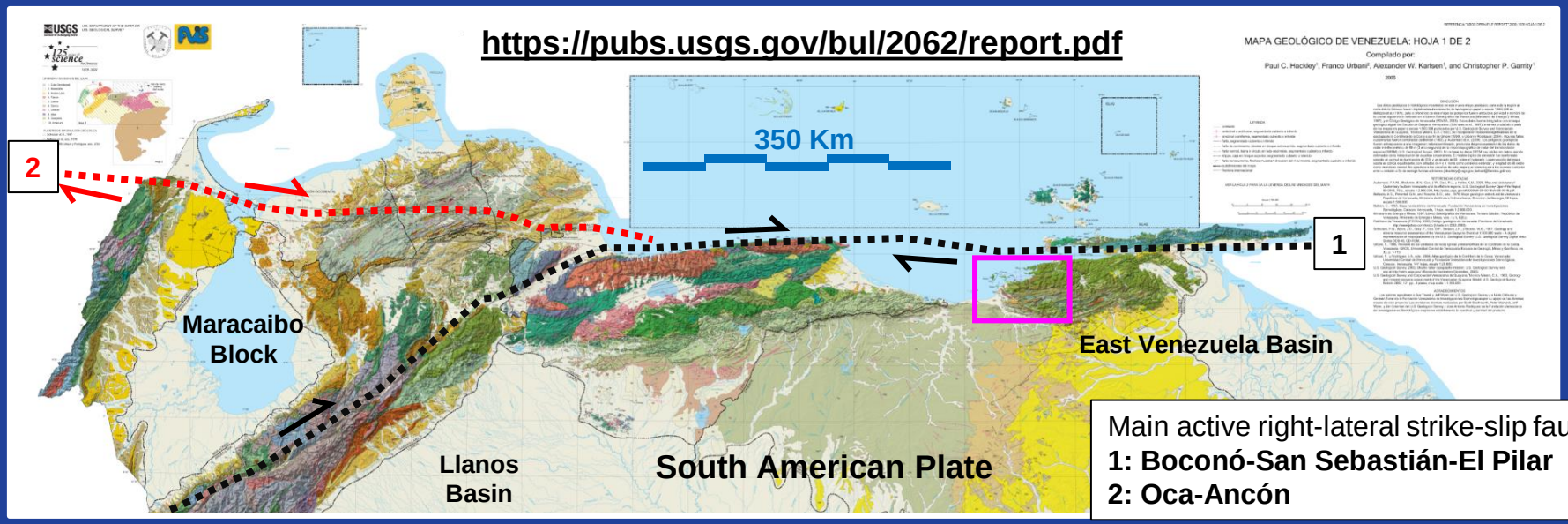
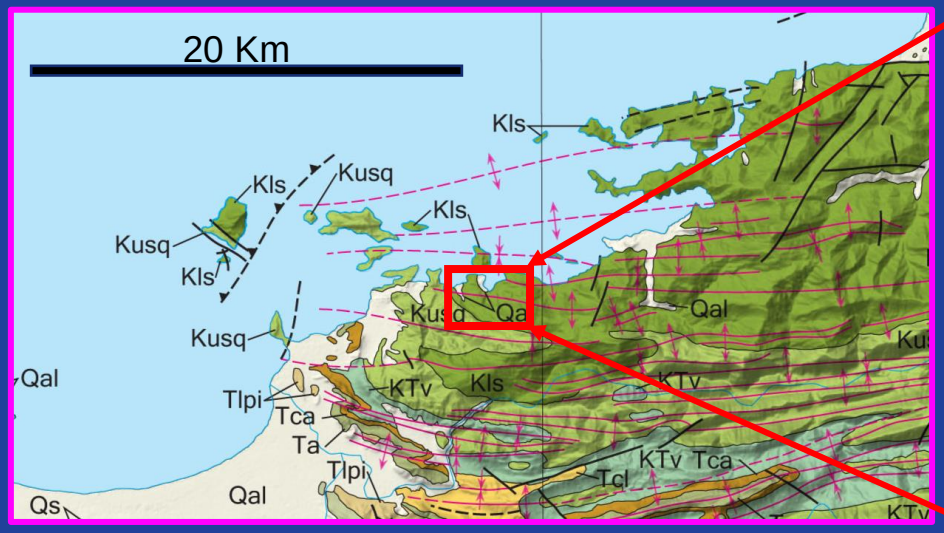
Early Cretaceous Conomita outcrop: structural analysis of syn-sedimentary gravity-driven deformations (NE Venezuela)

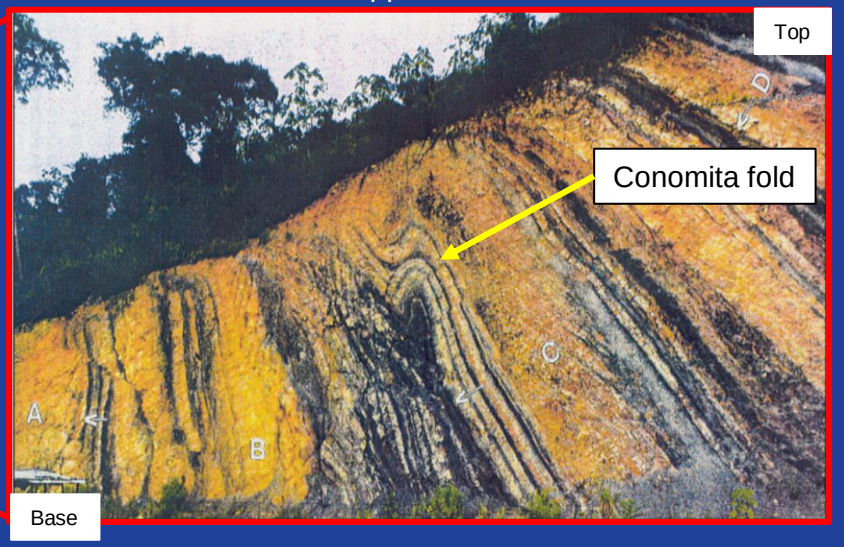
By Dr. Carlos Giraldo

Dedicated to my venezuelan colleagues and in particular to: ***Emira*** *Cabrera,* ***Oliver*** *Macsotay, J.F. Ortega and M. Alberdi*

Northern Venezuela Geology and outcrop location



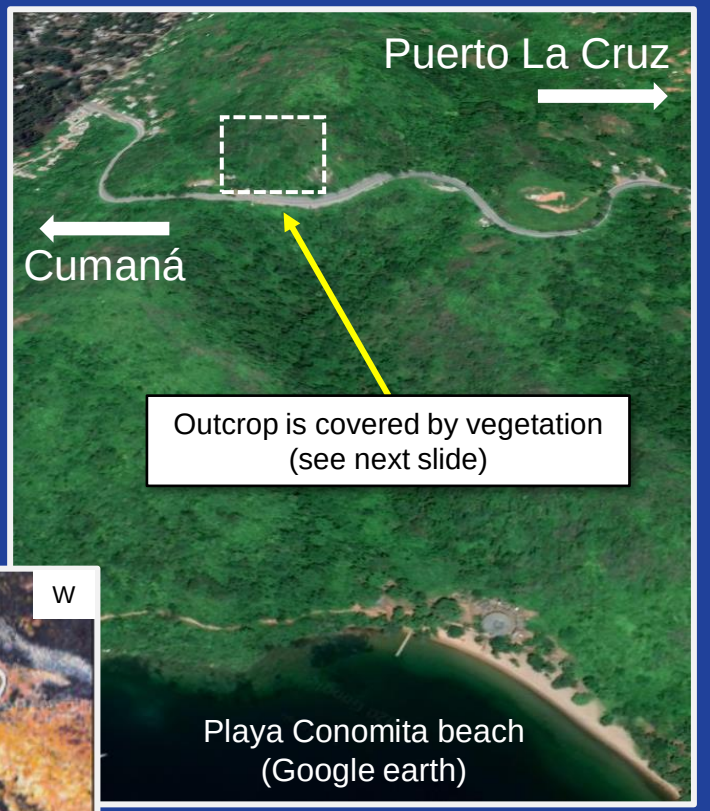




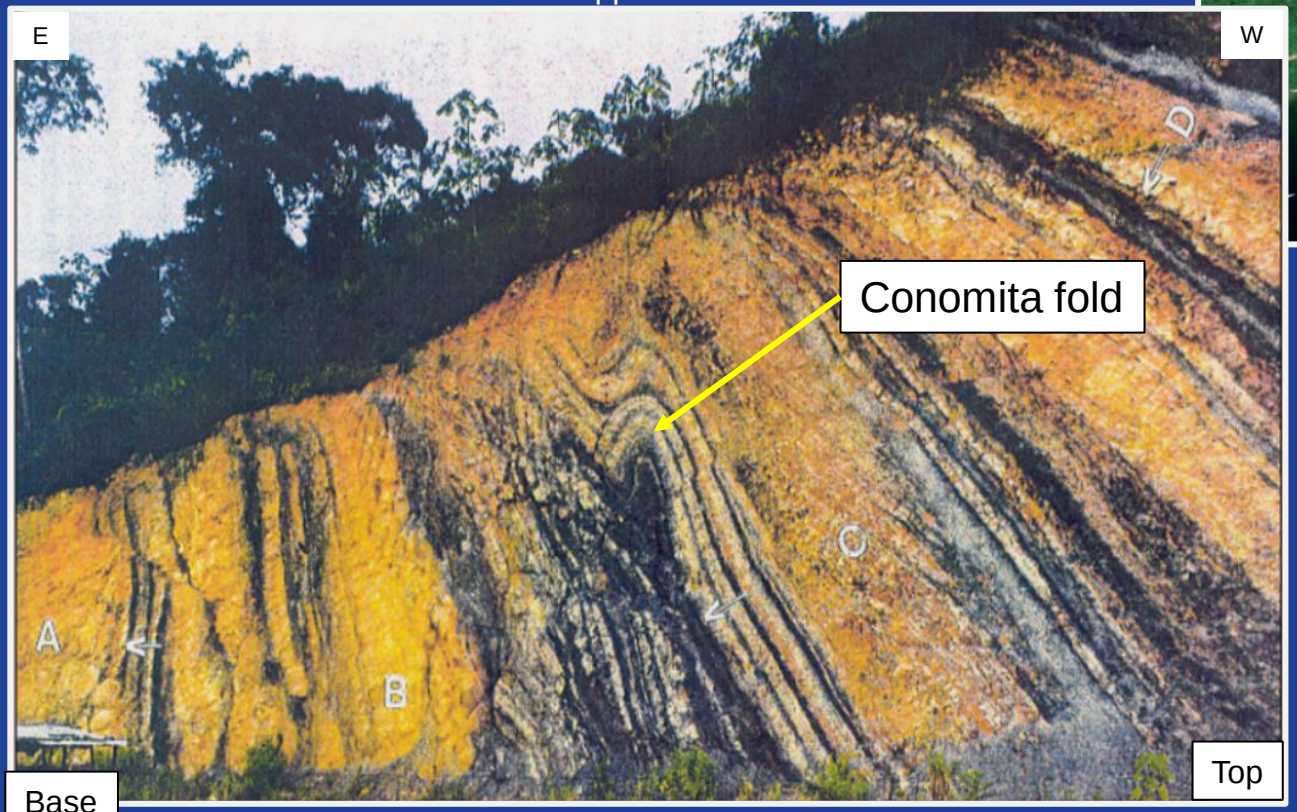
Location of Conomita fold

Stop # 5: 1993 Field-trip to Mountain front, East Venezuela "Excursion al Frente de Montaña, Venezuela Oriental (CORPOVEN, PDVSA)"

Cabrera,E., Giraldo,C., Macsotay, O., Ortega, J.F. and M. Alberdi (INTEVEP)



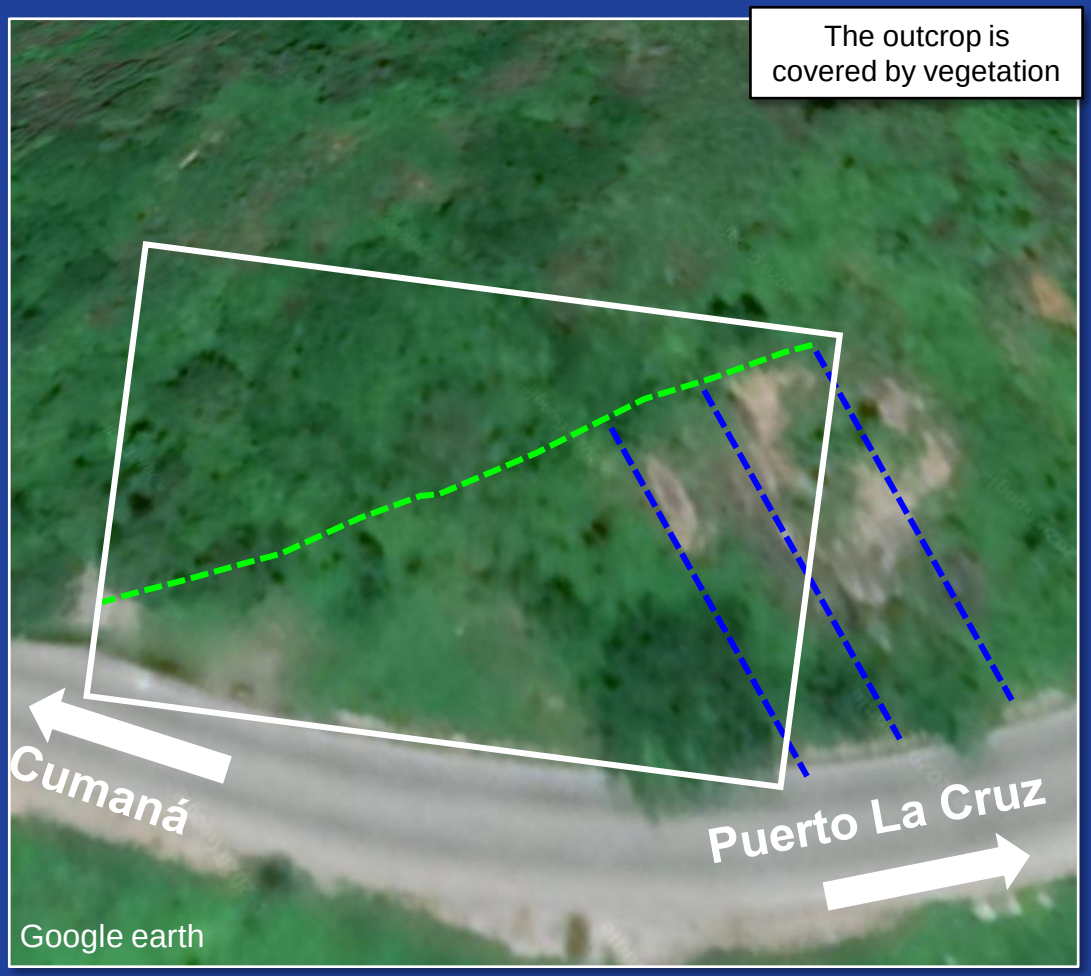
Approx. 30 m



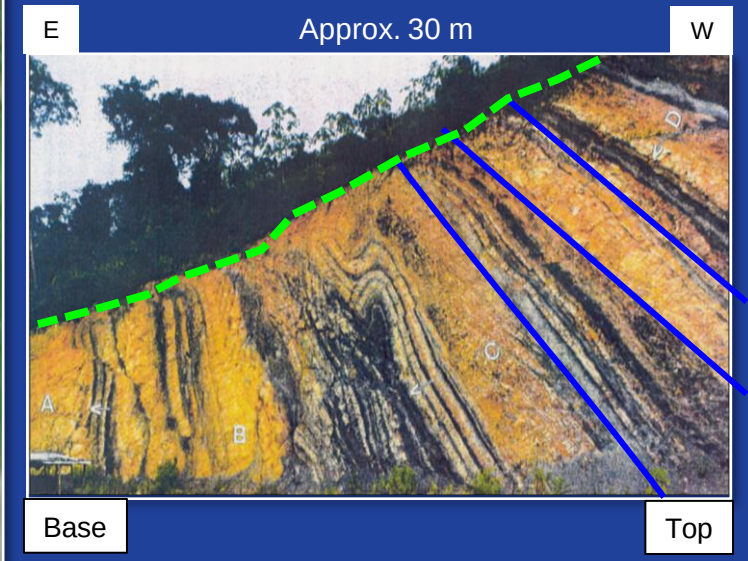
Barranquin Formation
(Early Cretaceous)

Stop # 5: Field-trip “Excursion al Frente de Montaña, Venezuela Oriental (CORPOVEN, PDVSA),1993”

Authors: Cabrera,E.,Giraldo,C.,Macsotay, O.,Ortega, J.F. and M. Alberdi (INTEVEP)



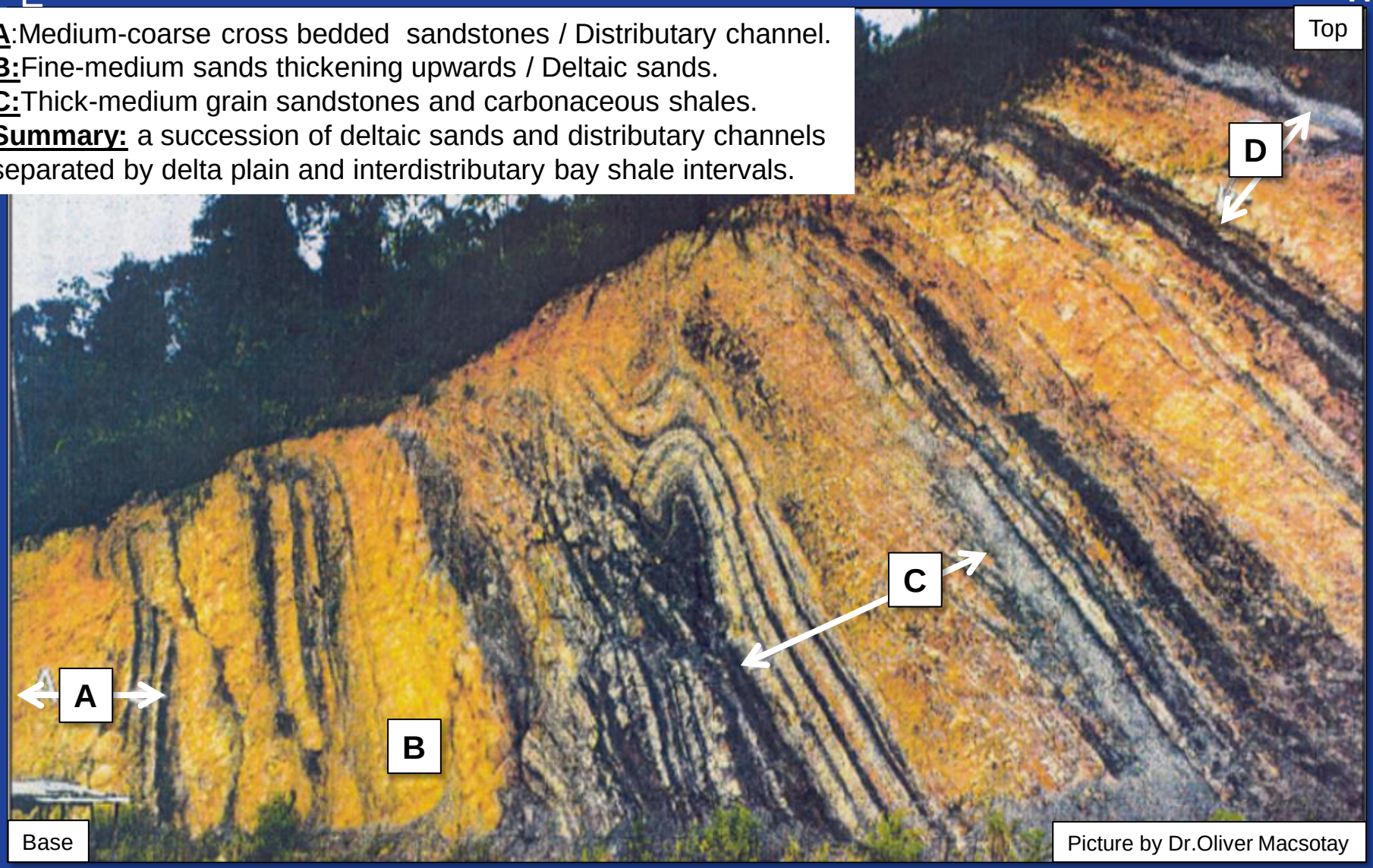
Approximate location of Conomita fold outcrop (see previous slide)



Outcrop analysis (Cabrera et al., 1993)

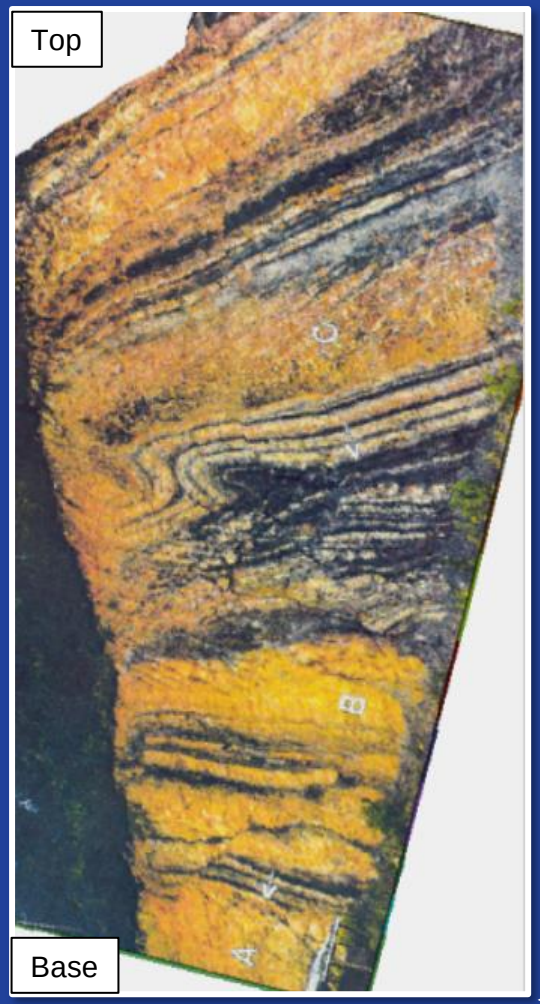
E W

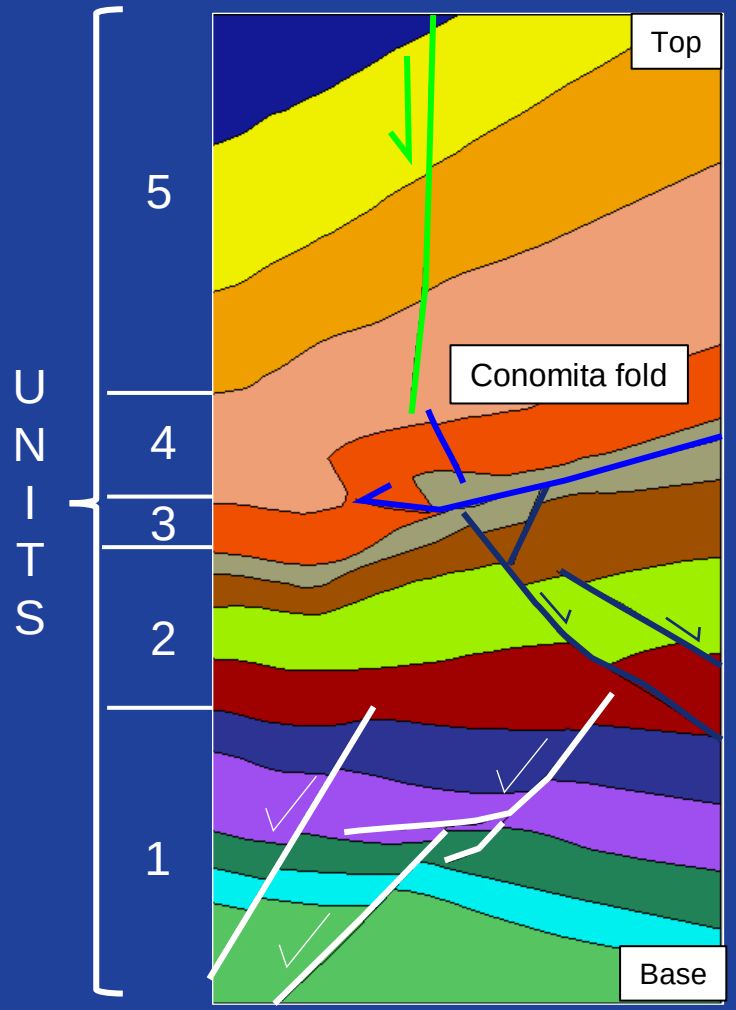
A:Medium-coarse cross bedded sandstones / Distributary channel.
B:Fine-medium sands thickening upwards / Deltaic sands.
C:Thick-medium grain sandstones and carbonaceous shales.
Summary: a succession of deltaic sands and distributary channels separated by delta plain and interdistributary bay shale intervals.



Approx 30 m

Syn-sedimentary gravity-driven deformations predated Miocene tectonics phase





Units 1 & 2 :listric faulting in opposite directions likely due to instabilities during sedimentation.
Unit 3:Conomita fold appears to be a slump feature generated during “syn-kinematics” Unit 4.
Unit 5 post-dates Conomita slump.

Comments

- An updated analysis of Conomita Fold outcrop (Barranquin Fm.) was performed using an image of field-trip guide-book organized by PDVSA in 1993: Excursion al Frente de Montaña, Venezuela Oriental (Stop # 5).

- “Remote” structural analysis carried-out along this outcrop reveals the existence of several deformation episodes related to gravity-driven processes. Conomita fold appears to be a slump feature generated in a deltaic setting.

- Early Cretaceous rocks were strongly tilted during Miocene-Recent tectonics phase contemporaneously to El Pilar right-lateral strike slip fault.

- A more exhaustive structural analysis should take into account the original thicknesses of para-sequences described throughout the outcrop. A valid restoration study needs to consider the original thicknesses prior to compaction because deformations occurred during early stage of Barranquin Formation sedimentation.

- This outcrop could be used eventually as an analog structure for hydrocarbon reservoirs and fault-seal analysis exercise.

- Conomita slump was also described in:Cabrera,E., Campos,V., Chigne, N., Hernandez, Fr. Galea, O. Macsotay and V. Vivas, 1988 Excursion al Frente de Montaña, Venezuela oriental, III Simposio Bolivariano de Cuencas Subandinas,Caracas,51pp.