What is CoMe?

CoMe is the name for a seminar series. It is born with the philosophy of being an open lunchtime meeting for PhD students, professors and applied mathematics enthusiasts from everywhere. Join us and share a delicious snack followed by a first class seminar talk surrounded by a friendly atmosphere of learning and discussion.

V CoMe Seminar:
Subduction dynamics and the origin of Andean orogeny

By Sergio Zlotnik
(LaCaN UPC)

Abstract

The building of the Andes results from the subduction of the oceanic Nazca plate underneath the South American continent. However, how and why the Andes and their curvature, the Bolivian orocline, formed in the Cenozoic era (65.5 million years, Myr, ago to present), despite subduction continuing since the Mesozoic era (251.0–65.5Myr ago), is still unknown. Three-dimensional numerical subduction models demonstrate that variations in slab thickness, arising from the Nazca plate’s age at the trench, produce a cordilleran morphology consistent with that observed. The age-dependent sinking of the slab in the mantle drives traction towards the trench at the base of the upper plate, causing it to thicken. Thus, subducting older Nazca plate below the Central Andes can explain the locally thickened crust and higher elevations. Here we demonstrate that resultant thickening of the South American plate modifies both shear force gradients and migration rates along the trench to produce a concave margin that matches the Bolivian orocline.

Please check further information at www-lacan.upc.edu

Next Meeting:
Friday, November 25, 2011
13.30h

Location:
Room 212, C2 Building
Campus Nord UPC

Contact us:
Feel free to leave us your doubts and suggestions at come.seminars@upc.edu