

Nadaya Cubas

E-mail : cubas@geologie.ens.fr

Born 04/08/1978
French

position

Teaching position at Préparation de l'Agrégation of Earth and Life Science (training for the recruitment of high school teachers), Université Paris Sud and ENS.

Education

- 11/02/2009 **PhD in Earth Science of the Université Paris Sud, done at the Laboratoire de Geologie of ENS**, Title : Sequence of thrusting, mechanical predictions, analogue validation and application to the Agrio fault-and-fold belt (Argentina). Advisors : Y. Leroy, B. Maillot ; Jury : P. Cobbold, W. Sassi, M.A. Gutscher, H. Zeyen, D. Frizon de Lamotte, M. Pubellier, J.C. Ringenbach.
- 2005 **Master's degree and Magistère of Earth Science**, of Universités Paris XI, Paris VI, Cergy-Pontoise and ENS.
- 2003 **Bachelor's degree of Earth Science**, of Universités Paris XI, Paris VI, Cergy-Pontoise and ENS

Research

- 2005–2009 **PhD : Sequence of thrusting, mechanical predictions, analogue validation and application to the Agrio fold-and-thrust belt (Argentina)**. Prediction of thrusting sequences in accretionary wedges and fold-and-thrust belts based on the theory of maximum rock strength. To validate the theory, an inverse study is done to compare mechanical predictions and sandbox results. The theory is finally applied to a real field case, the Agrio fold-and-thrust belt, in order to determine the forces required by various kinematical models.
- 2005 6 months research project at the ENS : **Transitory movements and coupling of the Chilean subduction (30°S-32°S)**. Data treatment of GPS surveys and analysis with Okada model. Advisor : C. Vigny.
- 2004 6 months research project at the Universidad of Granada, Spain : **Active tectonics of the Padul basin, Granada, Spain**. Field study, research of quaternary deformation evidences and geomorphological study. Advisor : J.M. Azanon.
- 2003 2 months research project at the Université of Cergy-Pontoise : **Geometry and 3D kinematics of the fault-bend-fold of Gulmima, Maroc**. 3D reconstruction and unfolding of a fault-bend-fold based on kinematics GPS. Advisor : P. Leturmy.

Teaching Experience

2008–2009	Teaching position at Preparation de l' Agregation in Earth and Life Science, Université Paris Sud and ENS.
2006–2008	Graduate assistant at university of Cergy-Pontoise. Geology of France, bachelor level. Study of the Parisian basin subsidence, Massif Central volcanism, Limagne rifting, Structural map of the Alps with the ECORS profil, Ophiolites metamorphism, cartographical study of Provence, Pyrennees. Geoscience cycles, bachelor level. Study of climatical, sismical, sedimentary and geophysical cycles. Historical Geology, bachelor level. Cartography initiation.
2005–2006	Laboratory classes in Geology of France and magmatical petrography.

Field Experience

2008	Structural study of the Agrio fold-and-thrust belt, Neuquen, Argentina (8 days).
2005	GPS survey Central Chile (10 days).
Feb. - June 2004	Cartography and active tectonics of the Padul basin, Granada, Spain (4 months).
Sept. 2003	Field trip in California and Nevada : magmatic/volcanic arc (Sierra Nevada Batholith, Lassen Volcanic Park), extensional tectonics (Basin and Range), accretionary wedge (Coast Range), seismicity along San Andreas and Hayward strike-slip faults (Seismology Laboratory, UC Berkeley)(3 weeks).
april 2003	Kinematical GPS survey and structural study of the fault-bend-fold of Goulmima, Marocco (8 days).
2002–2005	University Field Trips : structural cross-section of the Pyrenees, marine geophysics (Villefranche s/ mer), mapping (Drôme), Bourgogne sedimentology, Cotentin metamorphism, Massif Central magmatism (7 weeks).

Skills

Technical skills	sandbox experiments, statistics.
Systems	Linux, Windows et Mac.
Programming language	Fortran, Scilab, Latex.
GIS	arcgis, global mapper.
others	Adobe Photoshop, Illustrator, Xfig

Langues

Bilinguale french/spanish, english average fluency

Scientific production

Publications

N. Cubas, Y.M. Leroy, B. Maillot (2008), Prediction of thrusting sequences in accretionary wedges, *Journal of Geophysical Research*, B12412, doi : 10.1029/2008JB005717.

N. Cubas, B. Maillot, C. Barnes, Statistics of the experimental growth of a sand wedge, *submitted to Tectonophysics*.

Proceedings

N. Cubas, B. Maillot, Y.M. Leroy, C. Barnes, M. Pubellier, Prediction of thrusting sequence based on maximum rock strength and sandbox validation, International meeting of young researchers in structural geology and tectonics, *Oviedo, YORSGET 2008*.

N. Cubas, B. Maillot, C. Barnes, Y. M. Leroy, Growth of a sand wedge : Bias, error bars, and comparison to theoretical predictions, *Florence, Geomod 2008*.

Conference Communications

N. Cubas, B. Maillot, Y.M. Leroy, C. Barnes, M. Pubellier, Prediction of thrusting sequence based on maximum rock strength and sandbox validation, International meeting of young researchers in structural geology and tectonics, *oral, Oviedo, YORSGET 2008*.

N. Cubas, B. Maillot, Y. M. Leroy, C. Barnes, Prédiction des séquences de chevauchements des prismes d'accrétion et des chaînes d'avant pays, *oral, RST 2008*.

N. Cubas, B. Maillot, C. Barnes, Growth of a sand wedge : experimental uncertainties, and inversion to deduce fault strength, *poster, EGU 2008*.

N. Cubas, P. Souloumiac, B. Maillot et Y.M. Leroy, Predicting Folding Sequences Based on the Maximum Rock Strength and Mechanical Equilibrium, *oral, AGU 2007*.

N. Cubas, B. Maillot, Y.M. Leroy, Predicting thrusting in normal and out-of sequences in accretionary wedge, *poster, Montpellier, SUBCO, 2007*.

N. Cubas, B. Maillot, Y.M. Leroy, Predicting sequences of thrusting in accretionary wedge, *poster, EGU 2007*.

Award

Dec. 2007 AGU Fall Meeting : Outstanding Paper Award (section Tectonophysics).