

Specialization Course

Applied Sedimentology to the Study of Conventional and Unconventional Reservoirs.

Towards a new Sedimentology

Zapala and Chos Malal. Neuquén Province

Nowadays, the prospection and development of clastic reservoirs requires a deep understanding of several new concepts of sedimentology and depositional systems. However, the analysis of the Petroleum System frequently overlooks the crucial importance of the geometry, continuity, connectivity and diagenesis of the reservoir, probably because they are based on obsolete/out of scale sedimentological models when compared with high resolution data provided by 3D seismic and well logs. As a consequence, great investments are commonly wasted because of an unappropriated estimation of reservoir risks. In the case of unconventional reservoirs, completion and stimulation techniques are not always applied properly due to a limited understanding of the internal complexity of shale deposits. The origin and internal stacking of shale deposits have been oversimplified for years with dramatic exploration consequences. During the last few decades there has been a truly scientific revolution that set in crisis the validity of most of the classical sedimentological models for clastic reservoirs. Growing evidences revealed that most of the existing traditional depositional models found in literature are extremely basic and simplified, and almost none of them have a correspondence with the real world of clastic reservoirs.

The amazing outcrops available in the Neuquén Basin gives a great opportunity to study at least twenty different clastic depositional systems with a huge variety of sub-environments, ranging from continental to marginal marine, shelfal and inner basin. In order to provide an update of the main concepts applied to the understanding of clastic depositional systems and their related reservoirs (conventional-unconventional), a series of lectures complemented with excellent field examples will be conducted during this course. The course program comprises five days of theory (morning) complemented with field trips (afternoon) visiting some of the best outcrop examples of Jurassic and Cretaceous reservoirs of the Neuquén Basin.

**October
23th - 28th
2017**

PhD. Carlos Zavala

Consults:

info@gcsargentina.com

Prices:

1200 USD (before october, 1rst)

1600 USD (after october, 1rst)

Included: transport from Neuquén, lunches and guides

Not included: hotel and dinners



Program



18:00 hs. Arrival at Chos Malal

19:30 hs. Lecture in the hotel Conference Room

Introduction and main concepts. New paradigms in the sedimentology of clastic systems and their consequences in the prediction and analysis of conventional and unconventional reservoirs.

8:00 – 10:30 hs. Lecture in the hotel Conference Room

Review of continental depositional systems. Aluvial fans. Fluvial System. Lacustrine System. Eolian System.

10:30 – 18:00 hs. Field trip

Recognition and analysis of excellent outcrops of Neuquén Basin Early Cretaceous fluvial, lacustrine and eolian deposits. Facies analysis. **Mina San Eduardo and Cerro Rayoso areas.**

18:00 hs. Return to Chos Malal



8:00 – 10:30 hs. Lecture in the hotel Conference Room

Marginal and inner shelf marine depositional systems. Beaches. Strand plains. Cheniers. Estuaries. Wave and tidal diffusion processes. Litoral deltas. Prodelta hyperpycnites. Shelfal sandstone lobes. Cascadites.

10:30 – 18:00 hs. Field trip

Recognition and analysis of excellent outcrops of Neuquén Basin Early Cretaceous marginal marine and shelfal deposits. **Puerta Curaco and Loma Rayoso Anticlines areas.**

18:00 hs. Return to Chos Malal



8:00 – 10:30 hs. Lecture in the hotel Conference Room

Outer shelf and slope depositional systems. Depositional processes of fine grained sediments. Fluid mud flows and unconventional reservoirs. Shelf margin deltas/slope deltas.

10:30 – 18:00 hs. Field trip

Recognition and analysis of excellent outcrops of Neuquén Basin Late Jurassic - Early Cretaceous inner basin deposits. **Huncal and Loncopué areas.**

19:30 hs. Arrival at Zapala



8:00 – 10:30 hs. Lecture in the hotel Conference Room

Turbidite Systems. Intrabasinal and extrabasinal turbidites. Origin, facies and distinctive characteristics.

10:30 – 18:00 hs. Field trip

Recognition and analysis of excellent outcrops of Neuquén Basin Jurassic turbidite deposits. **Catan Lil range area.**

18:00 hs. Return to Zapala



8:30 – 15:30 hs Field Practice

Review, analysis and discussion of the Jurassic stratigraphic column outcropped in the Picún Leufú area.

15:30 Departure to Neuquén

18:30 Arrival at Neuquén

