

VC1: Geological Transect of Mendoza – The Caves: Geodynamic Evolution of the Central-Southern Andes

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Objectives:

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The transect offers the opportunity to examine the tectonic and surface processes which deformed and shaped the mountain ranges that conform the Central Andes along the Mendoza and Las Cuevas Rivers, examining the morphostructural units of the *Precordillera*, *Cordillera Frontal* and *Cordillera Principal*.

The main purpose is to understand the tectonic evolution of the Southern Central Andes, in one of its most classic and comprehensive sections. We will analyze the active orogenic front, its evolution in time and the influence of the pre-Andean tectonic events in history and the style of the Andean uplift. We will also focus on studying the relationship among tectonic processes, sedimentation and the evolution of the Triassic Cuyana basin; as well as the degree and style of tectonic inversion. The third objective will be to study the Mesozoic back-arc platform deposits in the Neuquén basin, focusing on the facies changes along the thrust belts and their interdigitation with volcanic facies of the arc.

Technical Program:

Day 1: field trip along Route 7 between Mendoza and Uspallata, with observational stops:

Stops:

- 1) Cerro de la Gloria: active orogenic front.
- 2) Road to Tupungato along Route 86: relationship between the *Precordillera* uplift and the Cuyana basin inversion. Structures and degree of tectonic inversion of the basin.
- 3) Road of Uco Valley towards Potrerillos along Route 89. Deformation front of the *Cordillera Frontal*. *La Carrera* fault system.
- 4) Return by Route 7 up to Potrerillos Dam. Uspallata Basin: miopliocenic sinorogenic deposits.
- 5) Route 7 to Uspallata: Rift deposits from the Cuyana basin.
- 6) Interaction between *La Carrera* fault system and *Precordillera* faults.
- 7) Uspallata Valley.

Day 2: field trip along Route 7 between Uspallata and Las Cueva. Return along Villavicencio road.

Stops:

- 1) Crossing of *Cordillera Frontal* through Route 7.
- 2) Penitentes: deformation front the Aconcagua fold-and-thrust belt. Santa María inter-mountain basin.
- 3) Puente del Inca: Jurassic and Cretaceous units of the Neuquén basin. Tectonic wedges of the Aconcagua fold-and-thrust belt.
- 4) Horcones: South wall of Cerro Aconcagua. Tectonic imbrications of the Jurassic-Cretaceous units.

- 5) Las Cuevas: volcanic and volcanoclastic deposits of the Cretacic volcanic arc inside the tectonic wedges of Aconcagua fold-and-thrust belt.
- 6) Return by Villavicencio road (Route 52): *Precordillera* structures.
- 7) Cuyana Basin: synrift deposits and associated magmatism.
- 8) Cerro de la Cal: active orogenic front.