

ANDES MOUNTAINS

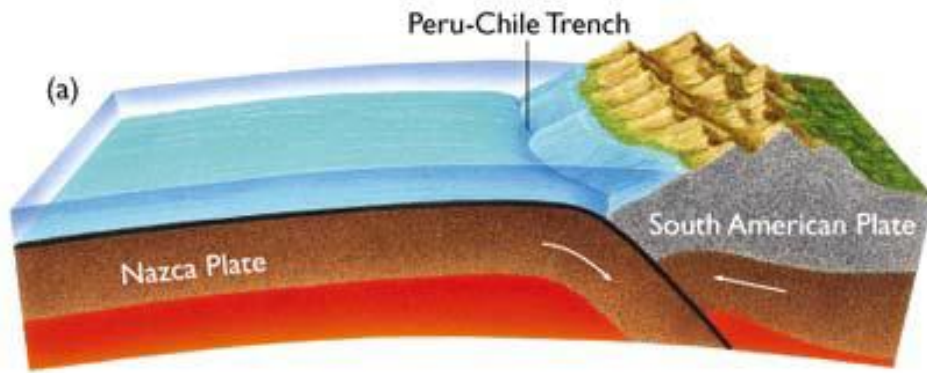
The Andes Mountain Range spans the entire length of South America, along the western coast. This close-up shows that coast, which represents the western terrestrial edge of the South American Plate. The leading edge of the Nazca Plate is subducting below the South American Plate at a plate boundary known as a subduction zone. During this subduction some Nazca crust is scraped off along base of the Andes, adding height to the entire range.



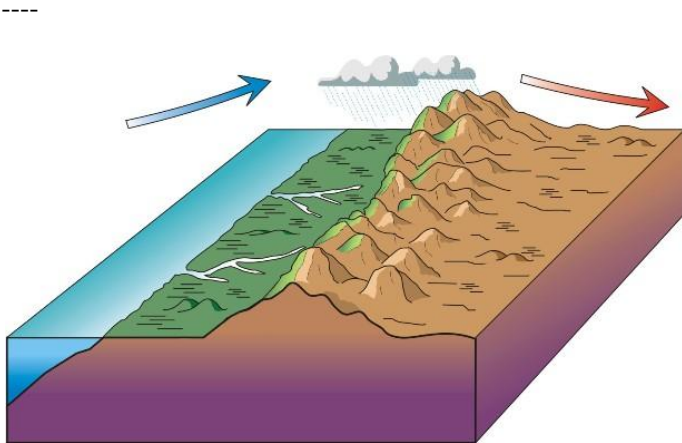
Places where plates crash or crunch together are called convergent boundaries. Plates only move a few centimeters each year, so collisions are very slow and last millions of years. Even though plate collisions take a long time, lots of interesting things happen. For example, in the drawing above, an oceanic plate has crashed into a continental plate. Looking at this drawing of two plates colliding is like looking at a single frame in a slow-motion movie of two cars crashing into each other. Just as the front ends of cars fold and bend in a collision, so do the "front ends" of colliding plates. The edge of the continental plate in the drawing has folded into a huge mountain range, while the edge of the oceanic plate has bent downward and dug deep into the Earth. A trench has formed at the bend. All that folding and bending makes rock in both plates break and slip, causing earthquakes. As the edge of the oceanic plate digs into Earth's hot interior, some of the rock in it melts. The melted rock rises up through the continental plate, causing more earthquakes on its way up, and forming volcanic eruptions where it finally reaches the surface. An example of this type of collision is found on the west coast of South America where the oceanic Nazca Plate is crashing into the continent of South America. The crash formed the Andes Mountains, the long string of volcanoes along the mountain crest, and the deep trench off the coast in the Pacific Ocean.

The Andes Mountain belt stretches along the entire west coast of the continent of South America. Active volcanoes are common throughout the mountain belt, and earthquakes frequently shake the rugged western coast of the continent. Some sections of the Andes show spectacularly folded rock layers. The highest mountain in the Andes is Cerro Aconcagua; its peak is 6960 meters (about 4 miles) above sea level.

More than 30 spectacular volcanoes occur in the Andes Mountain range. At 19,347 feet, Cotapaxi Volcano is the highest active volcano in the world.



The Andes Mountains have a very high snow line in Peru and northern Chile reaching an altitude of over 19,000 feet. The Andes Mountains are the longest stretch of mountains in the world. They stretch for 4,500 miles on the west coast of South America. It is one of the highest mountain ranges in the world. The peak called Anconcagua in Argentina is 22,834 feet high. The Andes Mountains, even though they are very tall, do not compare with the Himalayas, which are still more rugged and taller.



All mountains chains serve to a greater or lesser extent, depending on their size, shape, orientation, and relative location, as barriers for air and moisture that may have a direct influence on regional climates.

The rise of new mountain chains will directly influence the climate at a regional scale, therefore leading to erosive processes in the changing area. Chemical weathering and water erosion will dominate the humid side, while wind erosion will be more important on the dry areas.

The Quelccaya Ice Cap is the largest glaciated area in the tropics. Located in the Cordillera Oriental section of the Andes mountains of Peru, the ice cap is at an average altitude of 5,470 meters (18,600 ft) and spans an area of 44 square kilometers (17 mi²). As with the majority of the Earth's glaciers, the Quelccaya Ice cap has retreated significantly since it was first studied. Since 1978 the icecap has lost approximately 20% of its area, and the rate of retreat is presently increasing.

The complex interchange between climate, parent material, topography, and biology that determines soil types and their condition is deeply affected by altitude in the Andes. In general, Andean soils are relatively young and are subject to great erosion by water and winds because of the steep gradients of much of the land.

Founded in 1541, Santiago is one of the most modern capitals in South America. Situated on the outskirts of the Andes Mountains at an elevation of 520 meters, the capital has a population of 6 million, making it Chile's largest city. High levels of smog are very common in the capital, especially during the winter months

The Inca Trail to Machu Picchu consists of three overlapping trails. Located in the Andes mountain range, the trail passes through several types of Andean environments including cloud forest and alpine tundra. Settlements, tunnels, and many Incan ruins are located along the trail before ending the terminus at the Sun Gate on Machu Picchu mountain. Concern about overuse leading to erosion has led the Peruvian government to place a limit on the number of people who may hike this trail per season, and to sharply limit the companies that can provide guides.

Rising temperatures are melting high-mountain glaciers that supply water to many areas and people, especially during the dry season. This phenomenon has produced dramatic transformations in the Andean landscape, and threatened species are finding they have nowhere to go. Tropical deforestation has also hampered the ability of regional ecosystems to adapt to climate change.

Leaving Lima, Peru en route to the upper Cañete basin, we passed through some of the bleakest landscapes imaginable – mining towns in the Andes Mountains like La Oroya, described by Time Magazine as one of the world's most polluted places, where the average lead level is three times the World Health Organization limit.

Journey to the heart of the Andes Mountains where 'Pascua Lama' is poised to become the world's largest open pit mine. However, for the indigenous people and farmers living in the valley below, Pascua Lama threatens their only source of water in one of the driest places on earth.

The Andes Mountains are hurt by humans because they cut down trees which shelter many unique Andean animals. Man also mines for gold, silver, and copper which then erodes the soil and hurts the plants of the Andes.

The study analyzes the full portfolio of 150 planned dams across all six major river basins connecting the Andes to the Amazon, a geographic scope spanning Bolivia, Brazil, Colombia, Ecuador, and Peru. The Andes supply the vast majority of the sediment, nutrients, and organic matter to the Amazon floodplain, one of the most productive ecosystems for Earth. In addition, many important Amazonian fish species spawn only in Andean-fed rivers, including a number of long-distance migrants that must travel from the lowlands to the foothills.

The authors also found that more than 80 percent of proposed dams would contribute to forest loss due to new roads, transmission lines, or inundation. Including the potential new road and transmission line infrastructure needed for dams provides a much broader assessment of the full ecological impacts of proposed dams and their secondary effects.

In the South American Andes, farmers have used terraces known as andenes for over a thousand years to farm potatoes, maize, and other native crops. Terraced farming followed complex systems developed over centuries by Inca engineers to conserve scarce water in the mountains. The terraces were built to make the most efficient use of shallow soil and to enable irrigation of crops. The Inca used a system of canals and aqueducts to direct water through dry land and increase fertility. These terraced farms are found wherever mountain villages have existed in the Andes. They provided food necessary to support the populations of great Inca cities and religious centres such as Machu Picchu.



The Andean Flamingo is one of the rarest flamingos in the world. It is the only flamingo species with yellow legs and three-toed feet. The bill of the Andean Flamingo is pale yellow and black. This flamingo is native to the wetlands of the high Andes mountain range from southern Perú to northwestern Argentina and northern Chile. Not only are the flamingos' offspring numbers diminished by mining activities, but they are also affected by the egg collection by locals. This illegal hunting has increased over time due to an increase in international demand for flamingo eggs. Poaching is conducted by organized groups within Chile; the group members trap the flamingos and export them to Europe, the United States, and other overseas destinations.

The mountain range is home to a rich variety of fauna and flora, with about 30,000 species of vascular plants, 1000 species of amphibians, 600 species of mammals, 1700 species of birds, 600 species of reptiles and 400 species of fish.