

Valle de la Luna, Chile

Northern Chile is almost entirely the product of the subduction of the Nazca oceanic plate under the South American continental plate. This has been going on since before the break up of Gondwanaland, so outcrops include those of a wide age range of rocks that have been uplifted within the convergence zone. The Andes, rising to over 6000 m, encompasses more than 2500 volcanoes, and forms a mountain chain for the entire length of the country along the borders with Bolivia and Argentina. In the northern part of Chile, the parallel coastal mountains rise to 4000 m.

This coast and its hinterland is probably the driest desert on Earth; there are places that have had no significant rain in over 100 years. Snow on the Andes comes from the east, it melts and drains in to basins between the main and coastal ranges, where most of it evaporates in salt lakes. The largest in the world is Uyuni, over the border into Bolivia, while the Salar de Atacama, in Chile, is the second largest. This lies at an altitude close to 3000 m. Much of it is within a national park, which has some great scenery, with snow-clad volcanoes forming the eastern horizon, and the rugged but dry, multiple coastal ranges out to the west. Flamingos and other water birds abound. There are a few oasis villages on the streams feeding the salt lakes, and there is mining in some places. The principal salts are halite and gypsum but there are also valuable deposits of boron and lithium salts, all of which are currently extracted.

Within the Atacama Desert, the Valle de la Luna is a popular day-visit for the many tour groups who stop over in the small town of San Pedro, a few kilometres to the east. They go there to see a desert landscape with



Surface texture of the halite rock at outcrop.

small hills, cliffs, gullies and small canyons, all exhibiting typical features of sporadic water erosion in the desert. A key outcrop show signs of sedimentary structure, and then on closer inspection a curious surface texture. It is entirely made of halite, common salt, as the tour guides demonstrate with glee. In this area there are 1400 m of alternating evaporates and other sediments that are mostly reworked volcanic ash. The ongoing tectonic activity of the Andes, and the habit of salt domes to intrude upwards through the sedimentary sequences, keep fresh some splendid landscapes; serrated ridges of upturned strong beds create the barren terrain with their supposed lunar connotations that gives the site its name - inappropriate perhaps, but still very spectacular.

Alan Filmer



The view northeast from a fault scarp within the Valle de la Luna, across the distant Salar de Atacama towards Volcan Lincancabur, 5916 m high.