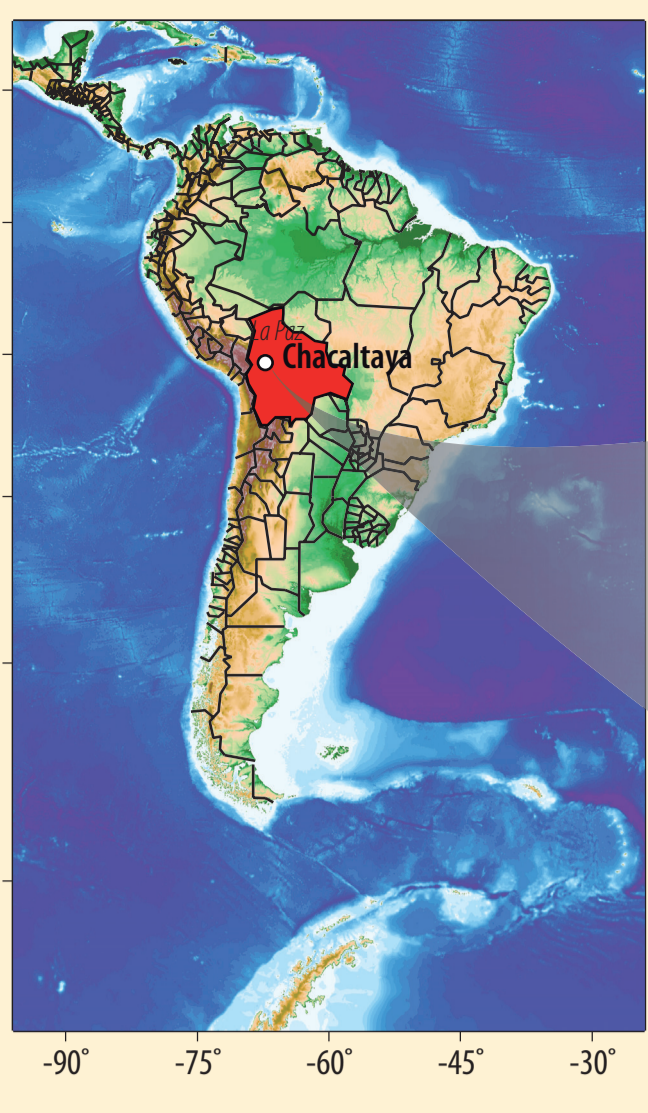




The Chacaltaya Laboratory



Altitude 5.230 m asl
Latitude S 16° 29'
Longitude W 68° 8'

located on the Chacaltaya mountain, Bolivia



Activities

cosmic ray physics and dosimetry, atmosphere physics and chemistry

The highest research site in the world

The Chacaltaya laboratory is the highest laboratory in the world, at 5230 meters above sea level. It is located on the Chacaltaya mountain, which is one of the mountains in the Bolivian Andean plateau, in the middle of Cordillera Real.



The Chacaltaya Laboratory 5230 m asl, Bolivia



The old Club Andino Boliviano near the laboratory 5260 m asl



Alpacas on the Bolivia plateau



The Huayna Potosi peak 6088 m asl (Bolivia)

Chacaltaya is considered the overlook of Cordillera Real, with numerous wonderful peaks over 5000 meters and many other over 6000 meters. The landscape from Chacaltaya reaches out from Illimani (6462 m) to Mururata (5775 m) to beyond Condoriri (5696 m), but the best view is the Huayna Potosi (6088 m), one of the most beautiful peaks in the world.



The Illimani mountain (6462 m) with the moon



The Chacaltaya laboratory during the International congress on Cosmic Rays (2000)



Overview of the laboratory



SCIENTIFIC EXPERIMENTS

The geography characteristics of the Andean plateau, allow a research of high level in the space field, with important outcomes for the international scientific community in terms of discoveries and perspective of new knowledge.



Transport of instrumentation at the laboratory

BASJE (Bolivian Air Shower Joint Experiment)

Japanese-Bolivian collaboration

High energy gamma research by the detection of Extensive Air Showers (EAS) produced by primary cosmic rays in atmosphere.



Researchers at work at muon detectors system in the Chacaltaya laboratory

EAS detectors



The neutron monitor in the laboratory

INCA (Investigation of Cosmic Anomalies)
University of Turin (Italy) and Universidad Mayor de San Andres (UMSA) La Paz

Detection of Gamma Ray Burst to investigate the explosions of enigmatic objects in our universe.

SLIM (Search for Light Magnetic Monopoles)

INFN Torino-Bologna and University of Turin

Since 2000 the Search for Light Magnetic Monopoles (SLIM) has been carried out at Mount Chacaltaya. A passive nuclear track detector (400 m²) made of sheets of plastic material is used to detect magnetic monopole, and strange quark matter or "nuclearite" in the cosmic radiation. The experiment will allow to investigate the nature of the "dark matter".

SASP (Surface Air Sampling Program)

Universidad Mayor de San Andreas (UMSA) of La Paz

Chacaltaya laboratory is one important SASP sampling location. The program was established in 1957 to track the global dispersion of radioactive debris resulting from atmospheric testing of nuclear bombs. In the 1980's, the program focused on the global distributions of the naturally occurring radionuclides, beryllium-7 and lead-210.

PHANTOM (Dosimetry in anthropomorphic phantom)

INFN Torino and Universidad Mayor de San Andreas (UMSA)

An anthropomorphic phantom is used to assess the human exposure to cosmic radiation in high altitudes.

The experiment allows to get data on the dose distribution in critical organs of the human body. The same technique can be used for dose evaluation in high altitude flight and in space aircraft.

