

Environmental Changes on the Tibetan Plateau: Evaluation and Prediction

A research report on the environmental changes of the Tibetan Plateau from the past 2,000 years to a century ahead has been released by the Institute of Tibetan Plateau Research, Chinese Academy of Sciences. After a three-year investigation into the plateau areas in southwest China's Tibet Autonomous Region with an average altitude of over 4,500 meters, international researchers found that the region is getting warmer and moister with glaciers backing off faster than before since the 1990s, and that over 80 percent of the permafrost will possibly disappear around 2100.

Warmer, moister

The Tibetan Plateau has been getting warmer and moister, particularly over the past 50 years, the research revealed.

The average annual temperature in the region rose by 0.3-0.4 degree Celsius every ten years between 1960 and 2012, about twice the average of the rest of the world. The temperature rose more sharply in winter and in northern part of the plateau.

Ice core records have shown that regional temperature rising over the 20th century was most prominent in history.





According to climate change models, the next 100 years may see the plateau warming up by another 4 degrees Celsius.

As for precipitation, it had a decadal overall rise of 2.2 percent from 1960 to 2012, but changes were unevenly distributed, with an increase in the north of the plateau and a decline in the south.

Retreating glaciers and disappearing permafrost

Glaciers on the Tibetan plateau have been backing off since the 20th century due to global temperature rising, and at a much faster pace since the 1990s, the report pointed out.

Glacier loss is most prominent in the Himalayan Mountains and the southeastern Tibet, whereas glaciers stay relevantly stable, even progressing, in the Karakoram and Western Kunlun region due to increasing precipitation.

The report forecast that from 2015 to 2100, the dominant changes in water bodies of the region would be retreating glaciers, reduced snow cover and rising river run-off.

And about 81 percent of the permafrost on the plateau will possibly disappear around 2100 due to the warming climate. In the near future, if the temperature continues to rise, the permafrost is estimated to be reduced by 39 percent.

The plateau has also shown an increasing desertification, mainly around the source region of the Yangtze River, where

the desert area has reached 33,200 square kilometers, or 66 percent of the total deserted land around all headwaters of China.

The contraction of frozen earth and the expanded desertification demonstrates deterioration of the land-surface environment on the Tibetan plateau, researchers said.

Restoration efforts

However, the report emphasized that the government has started to restore environment on the plateau.

For instance, about 40 mining companies which failed to meet environmental standards in Tibet have been shut down since 2010. The ecological environment along the Qinghai-Tibet Railway, the world's highest railway, is recovering after its first five years of operation.

Although the plateau's environmental risks increase as a result of climate warming and increasing human activities, it still remains one of the world's cleanest regions. "The environment background value of pollutants in the Tibetan Plateau, which is similar to that of the Arctic, is remarkably lower than that of densely-populated areas," the report noted.

It also proposed ecological preservation polices in the region, including the establishment of a demonstrative eco-cultural zone in Qiangtang, a habitat for wild animals including Tibetan antelopes and yaks.

The report took 70 scientists from around the world three years to complete. (Agencies)