

Project work

Climate in Republic of Altai

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The aim of the work is to get the students of the group informed about the development of climate in the Republic of Altai.

Tasks:

- ❑ Searching information, photo and video material on the topic;
- ❑ Structuring the information and other material;
- ❑ Making a computer presentation;
- ❑ Presenting the project at the lesson.



The Altai Republic has temperate continental climate with relatively short and hot summers (June - August) and long, cold and at some places very frosty winters (November - March). There's little snow in south-eastern parts (Kosh-Agach Region), which furthers the development of permafrost. The transition from winter to summer takes place very quickly.

The average annual temperatures are about $+1^{\circ}\text{C}$ - $-6,7^{\circ}\text{C}$. January temperature range is from $-9,2^{\circ}\text{C}$ to -55°C , July - from $+11^{\circ}\text{C}$ to $+35^{\circ}\text{C}$. The average annual precipitation level varies from 100 up to 1000 mm.

Continental arctic air easily reaching the inner territories all the year round, as well as humid air masses coming from the Atlantic Ocean, warm western and south-western winds, local cyclones formed by relief of the mountain system, foehn-like air flows are the factors forming the climate of the region. As a rule, the determining factor of formation of weather conditions is the movement of western air masses.

Relief greatly affects the climate of Gorny Altai and forms vertical climatic zones - the zone of lowland climate (up to 500-600 m); the zone of midland climate (from 500 up to 1500 m and over); the zone of highland climate (over 2000-2500 m).

One of the main factors affecting climate of Gorny Altai is abundance of solar energy. Inflow of total solar radiation per year reaches enormous quantities comparable to total solar radiation at health resorts of the Caucasus, the Crimea and Switzerland. For example, Katandinskaya Steppe, situated at the altitude of 900 m above sea-level, gets 112 kcal/square cm of total solar radiation per year; Tchuiskaya Steppe 142 kcal/square cm, while Caucasian health resort Abastumani (Southern Georgia) - 93 kcal/square cm; Sochi - 111 kcal/square cm, Yalta - 117 kcal/square cm, Davousse - 130 kcal/square cm.

In winter, an interesting climatic peculiarity may be observed in the mountain valleys. These are real warm climatic "oases". It's never really cold there; there's no blanket of snow and the winds constantly blow. Such phenomena are most clearly expressed in the valleys of the Tchulyshman and the Katun rivers, on the coast of the Teletskoye Lake. At the same time the temperature in the neighboring valleys may be 10-15°C lower with calm and windless weather prevailing. The reason is the so-called "foehn" - dry and warm wind. Great pressure difference, predominating on the territory of Gorny Altai during the whole winter is the reason of foehn origin. Southern regions of the Republic are under the influence of Asian Maximum, while cyclones (low pressure centers) are often in northern regions. In this case, foehns occur in the valleys, which directions coincide with the direction of air-flow - from the south to the north. Weather stations situated in the valley of the Katun River and in the valley of the Teletskoye Lake, record more than 100 "foehn-days" during the cold period of year. There's no other mountain system on the Earth with foehns playing such an essential role in climate formation.

Conclusion:

In general, the republic's climate of the southeastern areas, such as the (Ulagansky and Kosh-Agachsky Districts), is harsher than the climate of the less elevated northern areas.

Thank you for your attention!