

## **Mountain Communities of the Altai Mountains and Climate Change Works**

*An extract from the lecture*

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In this talk, I share traditional phenological observations of local and indigenous peoples of the Altai Mountains; seasons and sub-seasons; traditional concepts of seasons and their correlation with the calendar; supervision over migration of birds and animals; Altaian concepts of time and space; seasons of traditional rotational grazing; predicting weather and seasons by stars and the moon; traditional signs of climate and seasonal changes, and their reflection in the Altaian language and culture.

To estimate the changes in seasons, weather and climate, it is necessary to learn more about cultural values and traditional ecological knowledge of indigenous communities accumulated by many generations, and to understand how Altai Mountains and Grand Altai (mountain range that extends into Russia, Mongolia, China and Kazakhstan) are reflected in the Altaian worldview. For this purpose, it is necessary to give a general overview of elements of traditional phenological observations of nature. Traditional phenology is the system of traditional ecological knowledge about the changes in weather, seasons, and climate, based on observation of natural phenomena through special signs accumulated by indigenous communities during long periods. In other words, traditional phenology is a traditional science for nature observation.

The sap flow and swelling of birch buds begins. In the field snow cover gradually melts and disappears. Water bodies clear of ice. A good indicator of the 2nd sub-season ("revival of spring") beginning is the blooming of maral or maralnik (*Rhododendron ledebourii*) or "Altai Oriental cherry" as local people call this plant. As a rule, it happens on April 15-20. The 3rd sub-season is called the "heat of spring," and the 4th – the "pre-summer" or the "spring of green grass." The duration of seasons and sub-seasons depends directly on the geographical position of the area, landscape, cycles of solar activity, continuous formation of climate on the planet, and so on. All phenological phases are interconnected and follow one another. In the traditional culture of Altaians the concepts of time and space are inseparably linked to each other.

To understand it better, one should study local units for measuring time, length, and width. The Altaian units of length and distance are connected with a human body and his movements in the space on foot or by horse. Longer distances are denoted by the effect of audibility, horse speed, time to be spent to get to a particular place, etc. The idea of measuring space with a help of time and vice versa is present in the Altaian linear measure. For example, the distance passed by a horse during a day is equal to one day.

Local people use different natural signs to forecast weather. Their observations show that now the seasons change with one-month delay. Last fall the first snow was in November, and sheepherders had to wait before moving to their winter grazing lands. (Traditionally they move to the spring pastures in May, to the summer pastures – in June, to the autumn pastures – at the end of July or beginning of August, and to the winter pastures – in October). In general, winters are becoming warmer and with good amount of snow. Spring comes later as well. Trees start blooming only by the end of May. This year, in Altai they became green only in June.

Living close to nature and worshipping it, indigenous peoples of the Altai Mountains have developed very important traditional ecological knowledge and have made it the indispensable part of their culture, worldview and everyday life. Observation of different natural phenomena, such as behavior of migratory birds and animals, movement of the moon and stars help them to better adapt to changes of weather and climate...