SUNRAISE

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SIBERIAN FEDERAL UNIVERSITY

Russian State Hydrometeorological University

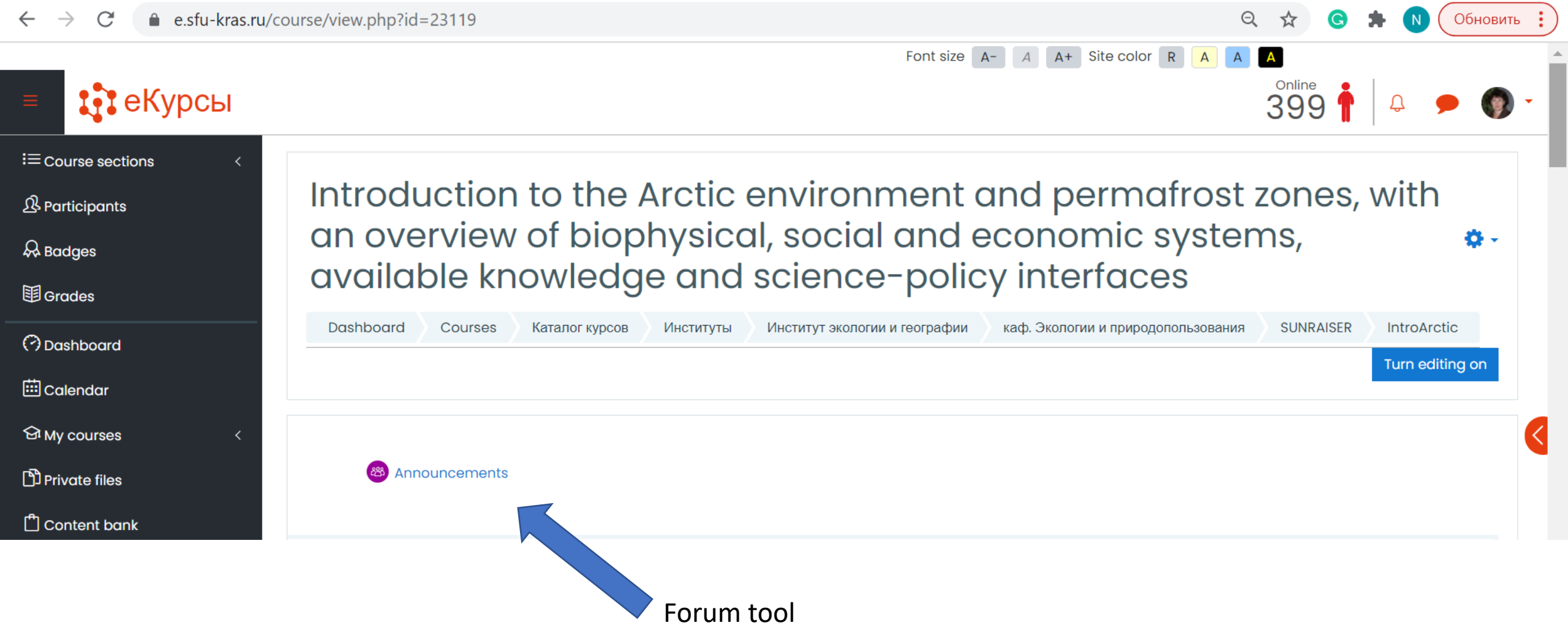
Course Presentation

Introduction to the Arctic environment and permafrost zones, with an overview of biophysical, social and economic systems, available knowledge and science-policy interfaces

The main tools of the platform Moodle used by the student when studying the training course are:

- General Course Description Tool
- Tool "Training Schedule" (instruction on the use of an educational resource)
- Lecture, video lecture, presentation and information page tools (theoretical material)
- Video Resources tool (additional training video on course sections)
- Forum tool (for presenting and discussing practical assignments)
- Additional Resources tool (links to additional educational materials and information resources)
- Tool "Tests" (control of assimilation of the studied material)

- The teacher can control the learning process using the "Electronic journal" tool.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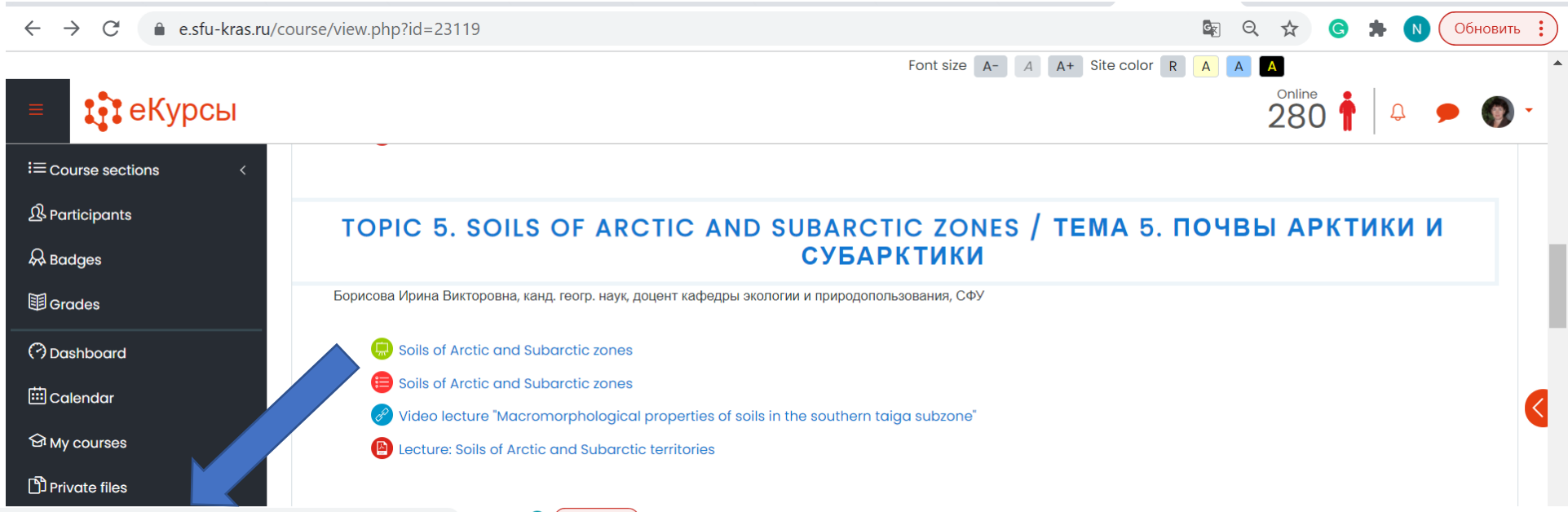
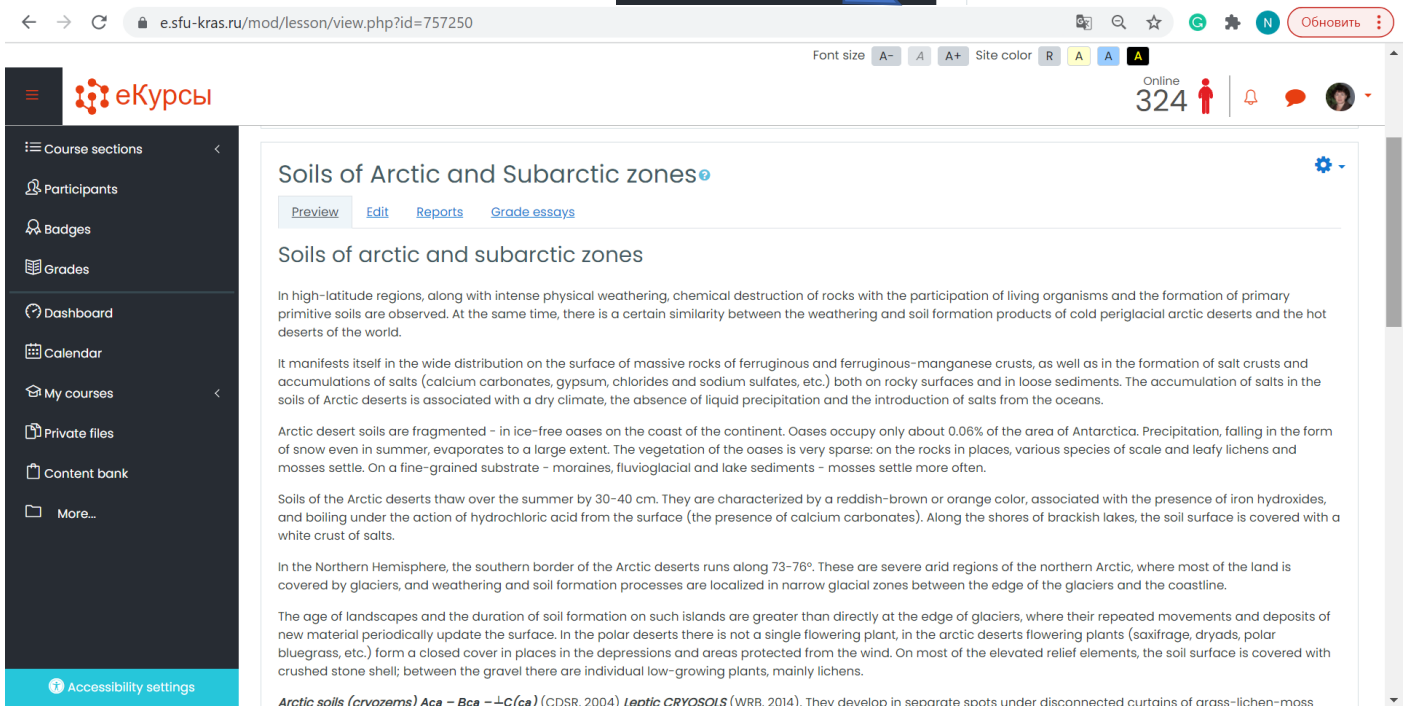
Lecture / Lesson



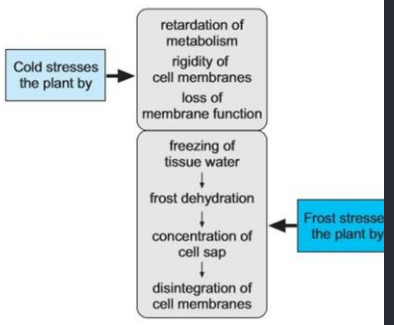


Presentation

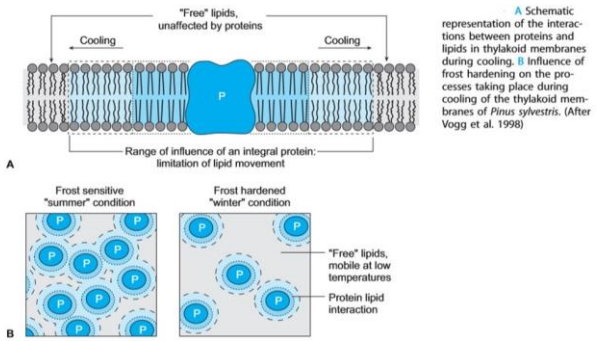
Stress from cold and frost

On about two-thirds of the land mass of the earth the annual minimum temperatures fall to below 0°C, on half of the land mass to -10 °C.

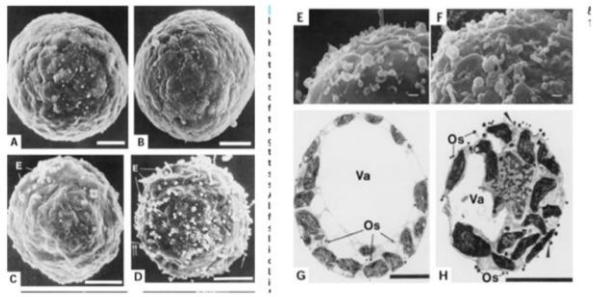
Thus it is not surprising that cold is the best studied of any abiotic stressor for plants and animals, and it is of enormous economic importance.



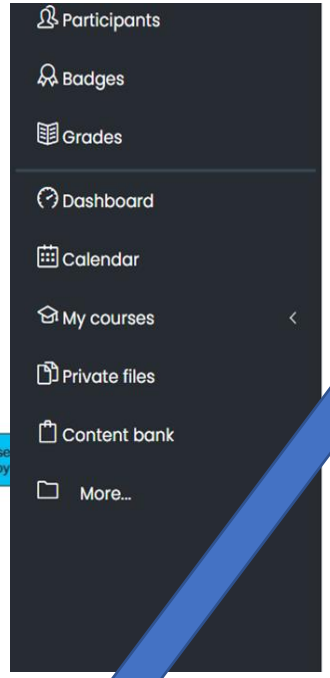
Stress from cold and frost



A Schematic representation of the interactions between proteins and lipids in thylakoid membranes during cooling. B Influence of frost hardening on the processes taking place during cooling of the thylakoid membranes of *Pinus sylvestris*. (After Vogg et al. 1998)



(After Steponkus et al. 1983, 1988)



TOPIC 6. FLORA OF THE ARCTIC / ТЕМА 6. ФЛОРА АРКТИКИ

Глушковская Наталья Борисовна, ст. преподаватель кафедры геоэкологии, природопользования и экологической безопасности, РГГМУ

Пахарькова Нина Викторовна, канд. биол. наук, доцент кафедры экологии и природопользования, СФУ

- Video lecture: Plants adaptation to cold and frost (voice)
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- Flora of the Arctic

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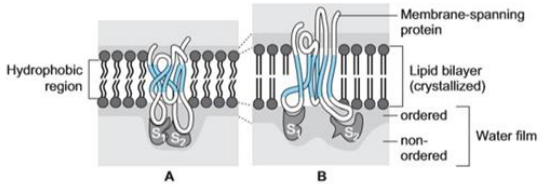
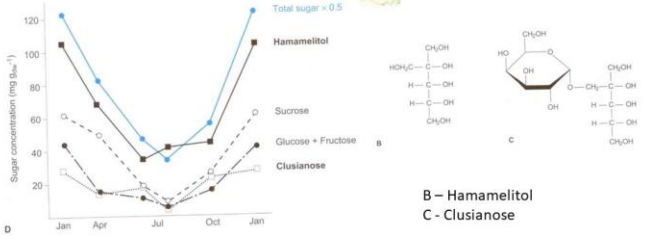
- At the subcellular level, chilling damage occurs through metabolic imbalances and membrane "stiffening".



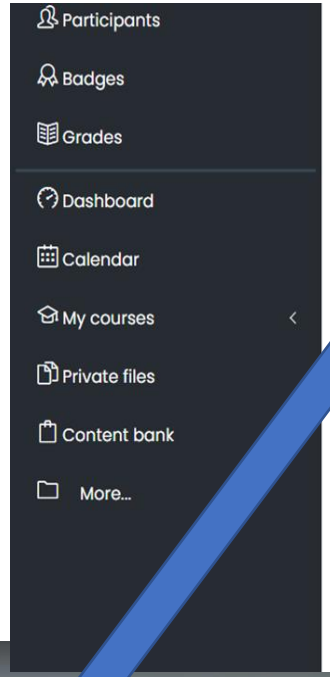
Model of a biomembrane in cross section, in a fluid (active A) and in a rigid (inactive B) state. S_1, S_2 substrates. (After Wolfe 1978)

Frost protection in the Primula clusiana



B – Hamamelitol
C - Clusianose

Video lecture



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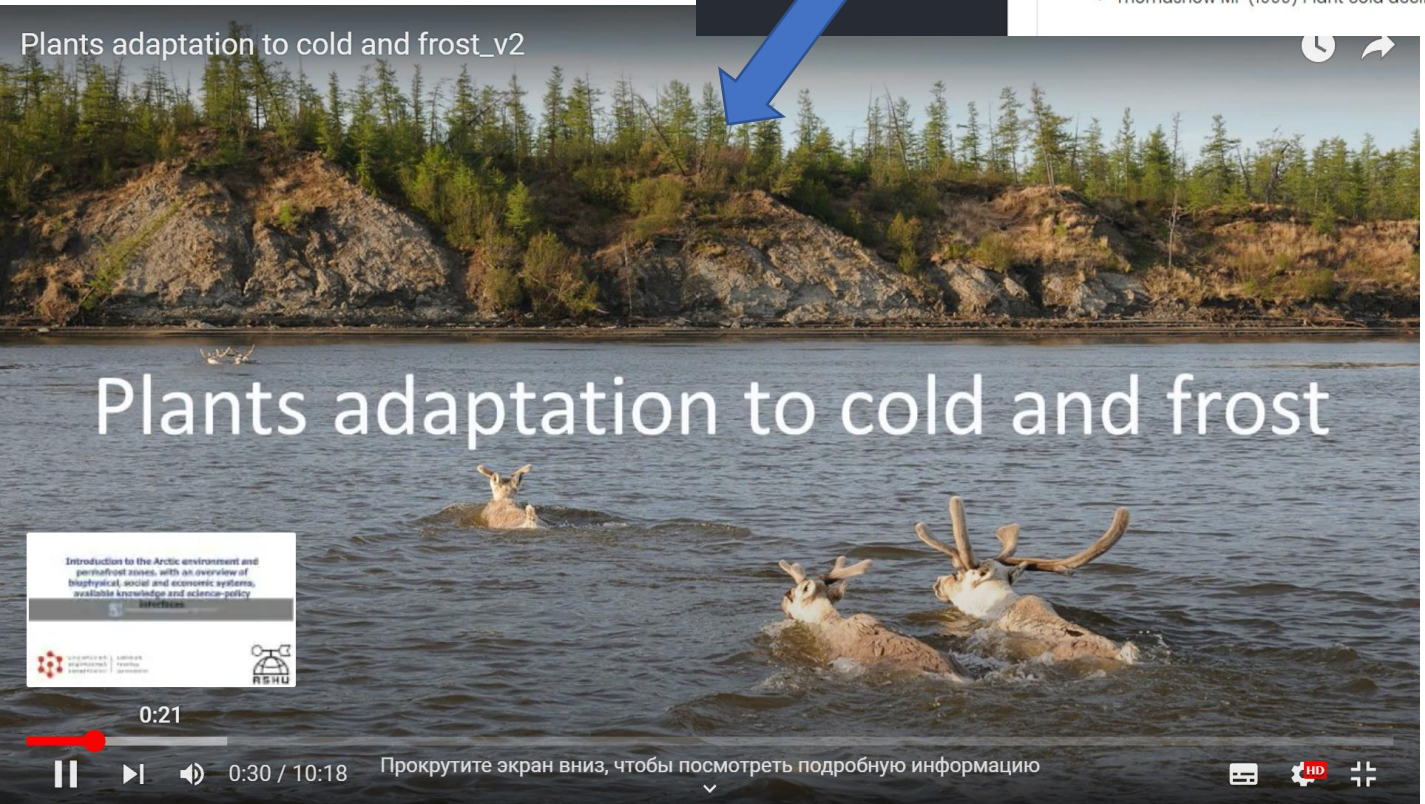

Educational video resources

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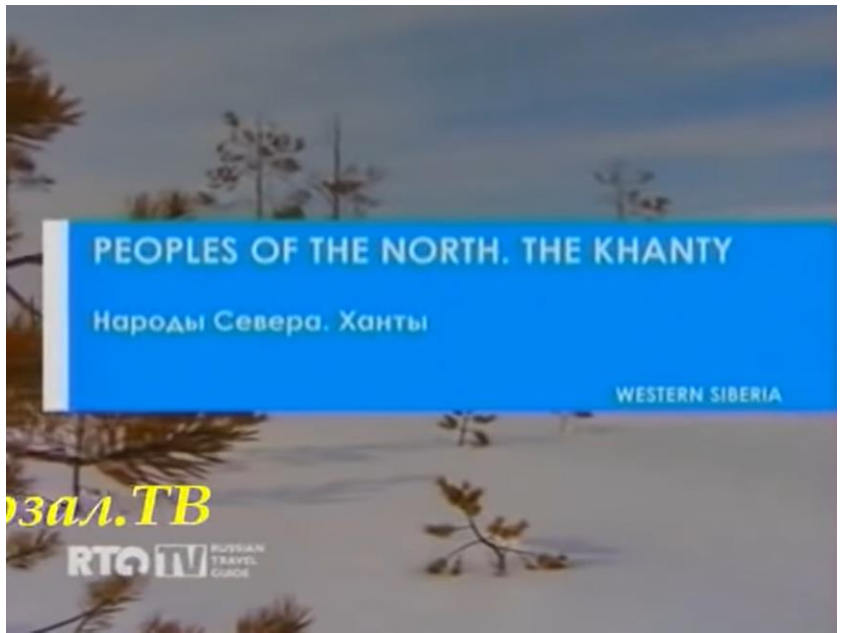
TOPIC 11. TRADITIONAL NATURE USE OF INDIGENOUS POPULATION IN THE NORTH / ТЕМА 11. ТРАДИЦИОННОЕ ПРИРОДОПОЛЬЗОВАНИЕ НАРОДОВ СЕВЕРА

Гренадерова Анна Валентиновна, канд. геогр. наук, доцент кафедры экологии и природопользования, СФУ

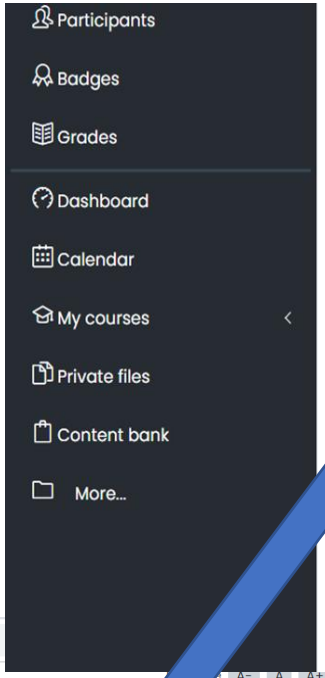
- Traditional nature use of indigenous population in the North
- Traditional nature use
- The peoples of the north of Khanty

The film of the RTG channel (Russian Travel Guide) about the peoples of the north of Khanty

- Lecture Traditional nature use of indigenous population in the North



Tests



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Introduction to the Arctic environment and permafrost zones, with an overview of biophysical, social and economic system available knowledge and science-policy interfaces

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Topic 6. Flora of the Arctic / Тема 6. Флора Арктики › Plants of the Arctic › Preview

Question 1
Not yet answered
Marked out of 1.0
Flag question
Edit question

Morphological adaptations of plants for cold:

- a. Big size
- b. Intense coloring and protective felt-like coating
- c. The number of stomata per unit of leaf surface increases, and their size decreases
- d. Cell sizes decrease, tissue density increases

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Quiz navigation

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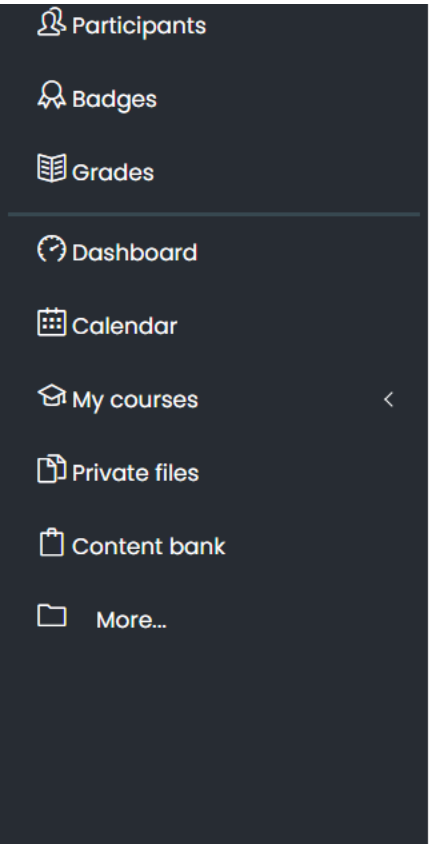
Finish attempt ...

Start a new preview

PREVIOUS ACTIVITY

NEXT ACTIVITY

Recommended Literature



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