Land cover and temperature measurements
Käsmu 2022

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Introducing our work

Research questions:

- What kind of land cover can be found along the way?
- Is Käsmu peninsula a homogeneous site regarding MUC code/land cover?
- How does the temperature/humidity change related to the land cover?

Hypotheses:

- Käsmu peninsula is a homogeneous site which means it is dominated by MUC0192.
- Temperature changes related to the differences between ground covers.

Research methods and equipment

Land cover: measuring tape, rope, flags, clinometer, densiometer, plant identifier, GLOBE data entry app.

Atmosphere: Vernier LabQuest2 with temperature sensor, infrared thermometer, psychrometer, GLOBE data entry app.

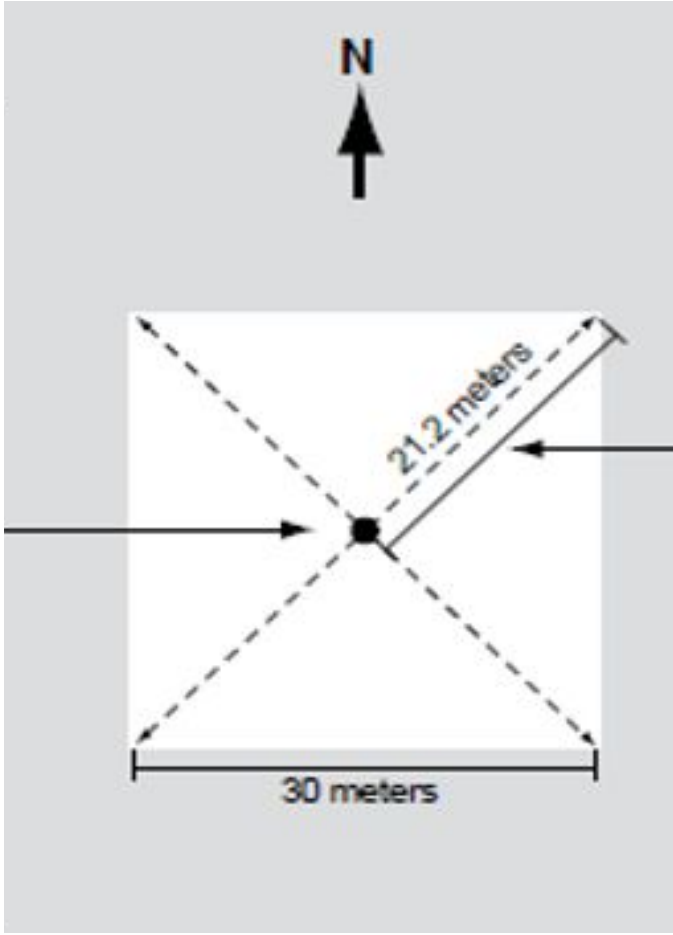
Methods: GLOBE land cover protocols.

Methodology

Required 30x30m area = 1 pixel on standard satellite image.

21,2m diagonals used for canopy and ground cover measurements.

Photos from every arc (north, south, east, west), upwards and downwards. In case of a forest site dominant tree height and circumference measurements are done



Sites

Pine forest

- 59.609095 N, 25.890523 E

Peatland

- 59.600279 N, 25.879429 E

Land Cover Sites

N

Results

Pine forest

- MUC: 0192
- mainly evergreen
- closed forest 54%
- irregularly rounded crowns
- other green and shrubs 86%
- inside moss: 18℃
- surface of lichens: 22℃
- humidity: 76%

Peatland

- MUC: 62
- palustrine wetland
- closed forest 51%
- cylindrical crowns
- other green and shrubs 78%
- inside peat: 21,8℃
- surface of peat: 21,7℃
- humidity: 69%

notable feature: big boulder fields spread out all over the peninsula

Figure 1. Boulder field in the pine forest

Figure 2. Canopy cover in pine forest.

Vegetation/Dominant Species in Pine Forest (MUC0192)

European blueberry	*Vaccinium myrtillus*
Icelandic Moss	*Cetraria Islandica*
Red Stemmed Feathermoss	*Pleurozium Schreberi*
Reindeer Cup Lichen	*Cladonia Rangfinera*
Baltic pine	*Pinus sylvestris*
European spruce	*Picea abies*
Mountain-ash	*Sorbus aucuparia*

Peatland (MUC 62)

Lingonberry	*Vaccinium Vitis-Idaea*
Hare's-tail cottongrass	*Eriophorum Vaginatum*
Marsh Labrador Tea	*Rhododendron Tomentosum*
Icelandic Moss	*Cetraria Islandica*
Red Stemmed Feathermoss	*Pleurozium Schreberi*
Downy birch	*Betula pubescens*
Sphagnum moss	*Sphagnum flexuosum*

Sites for temperature measurements

N

22℃
Pine forest

34,9℃

20,2℃ /25℃

21,7℃
Peatland

Conclusion and discussion

- **Q:**What kind of land cover can be found along the way?

  A: Mostly, moss, evergreen forests (pine trees) and big boulder fields spread out all over the peninsula.

- **Q:** Is Käsmu peninsula a homogeneous site regarding MUC code/land cover?

  A: No it´s not, we encountered different types of flora and 2 different types of land cover. (MUC: 0192; 62)

- **Q:** How does the temperature/humidity change related to the land cover?

  A: Peatland is colder and damper, however pine forest is more dry and warmer.

Conclusion and discussion

Hypotheses no.1

Käsmu peninsula is a homogeneous site which means it is dominated by MUC0192. FALSE

Käsmu peninsula consists of at least 2 different land cover types - MUC62 and MUC0192.

Conclusion and discussion

Hypotheses no.2

Temperature changes related to the differences between ground covers. TRUE

There were significant differences between the ground temperatures, e.g. lichen&moss in the pine forest VS peat moss in the damp area, etc.


Aitäh! Dekuji! Hvala!
Děkuji!
Ačiū! Дякую!