



**HAL**  
open science

## Geography of fire hazard in Swedish Lapland and three reindeer herding communities (Gaba, Jaahkaagaska tjellde, Sirges)

Nolwenn Péron, Romain Courault, Marianne Cohen

► **To cite this version:**

Nolwenn Péron, Romain Courault, Marianne Cohen. Geography of fire hazard in Swedish Lapland and three reindeer herding communities (Gaba, Jaahkaagaska tjellde, Sirges). Arctic Week 2019, Ministère de l'Europe et des Affaires Etrangères, Dec 2019, Paris, France. hal-02409592

**HAL Id: hal-02409592**

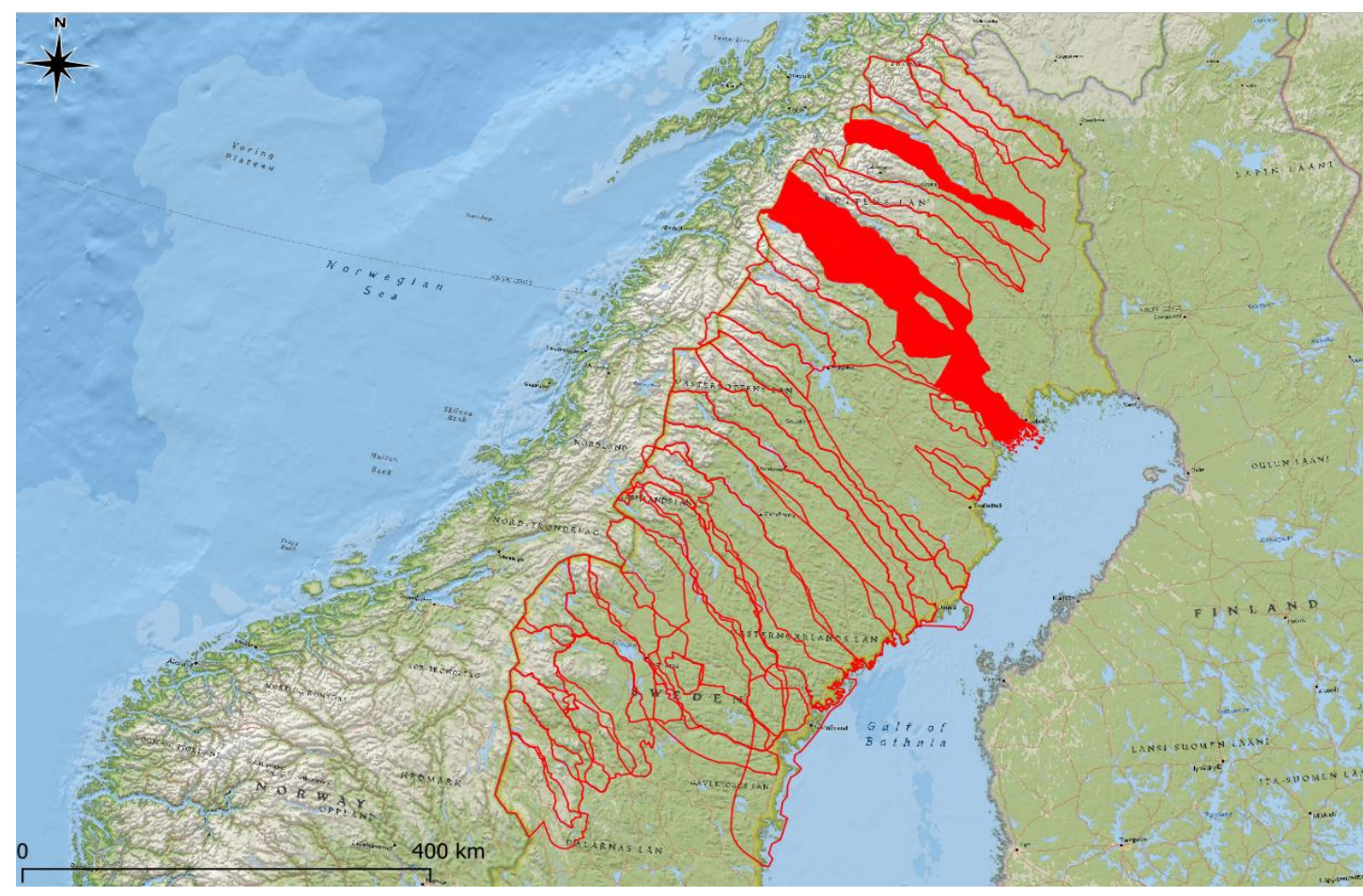
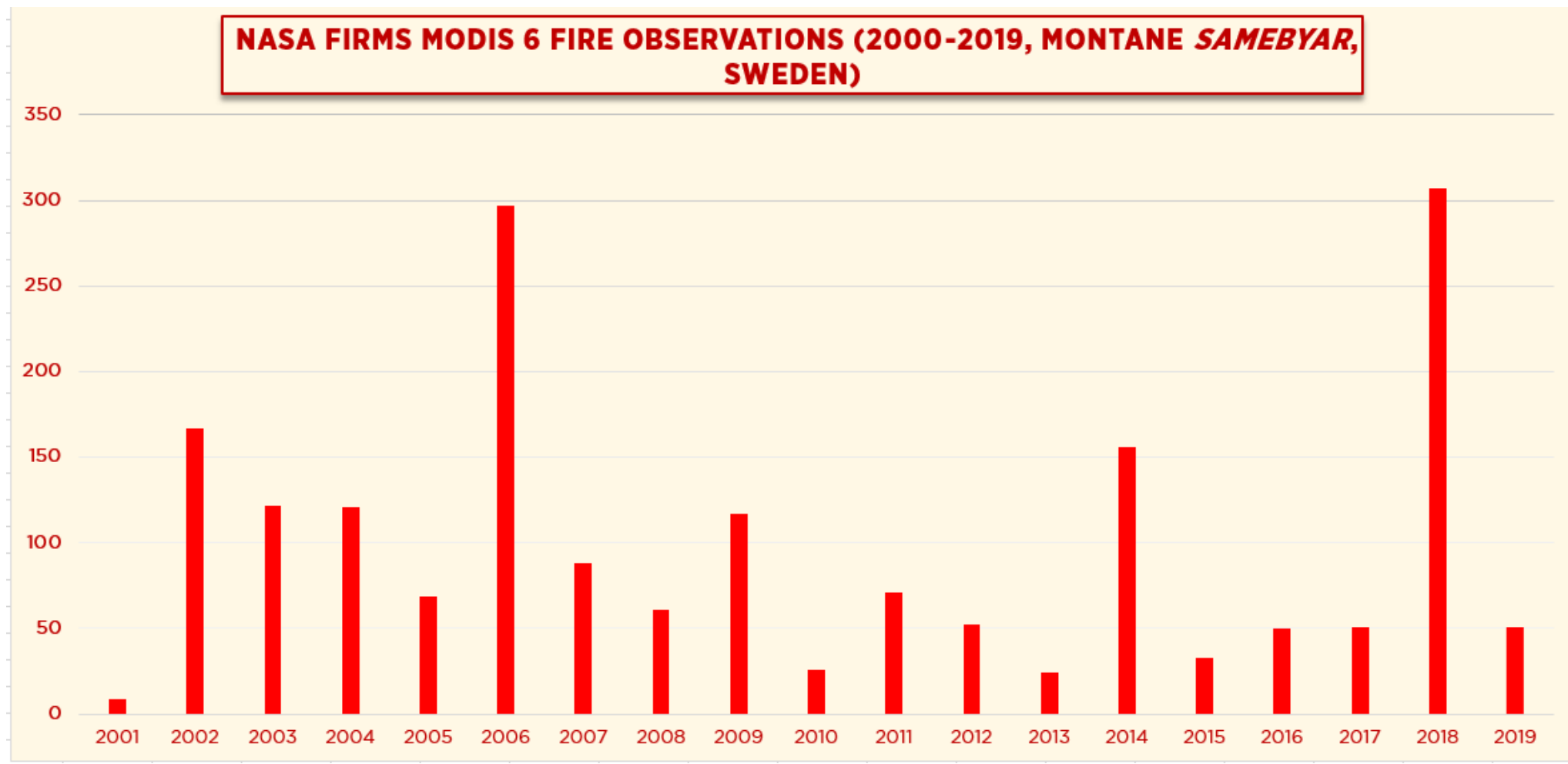
**<https://hal.science/hal-02409592>**

Submitted on 13 Dec 2019

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

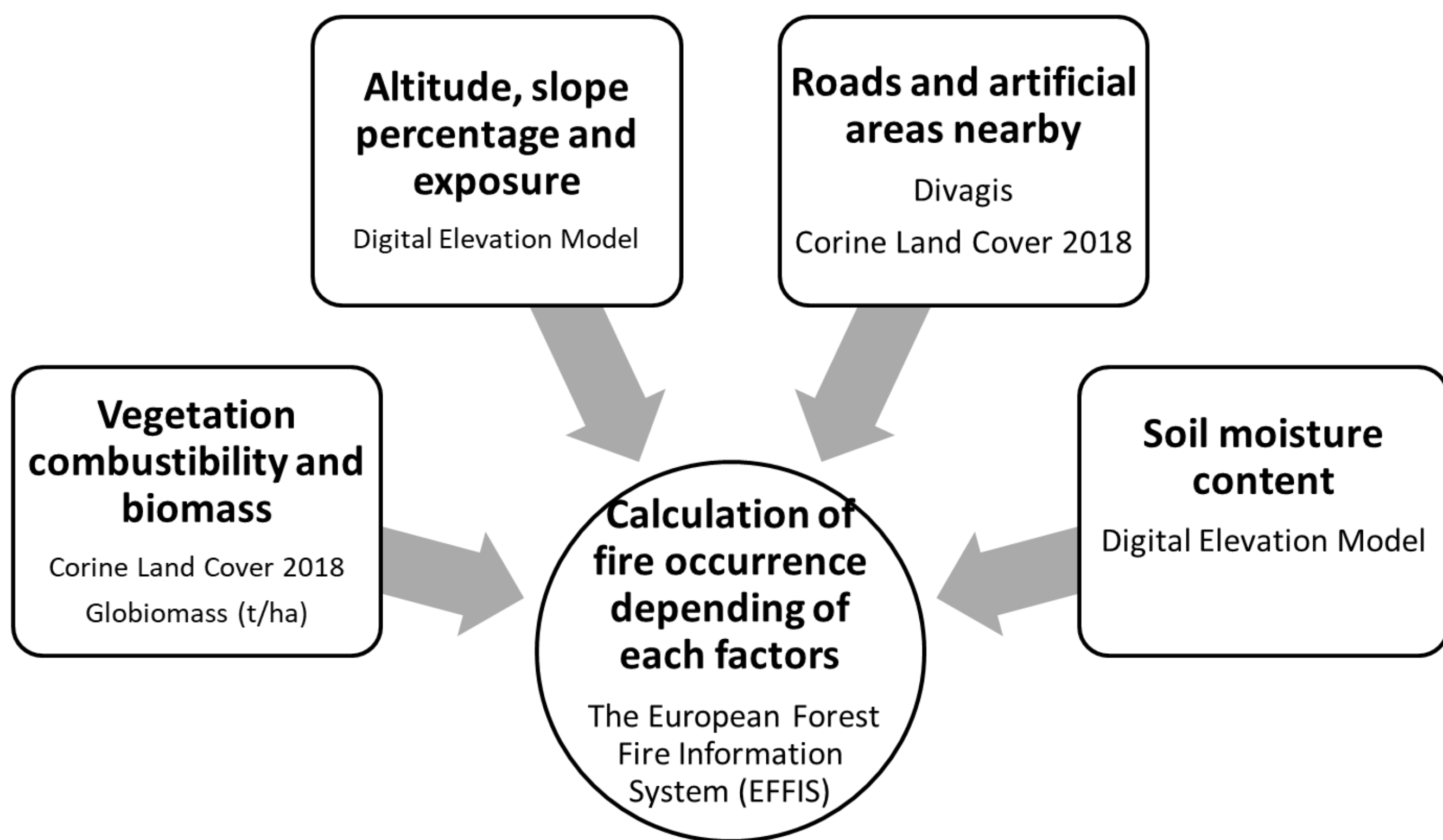
L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

## 1 Fire risk as a supplementary issue reindeer herders have to deal with ?

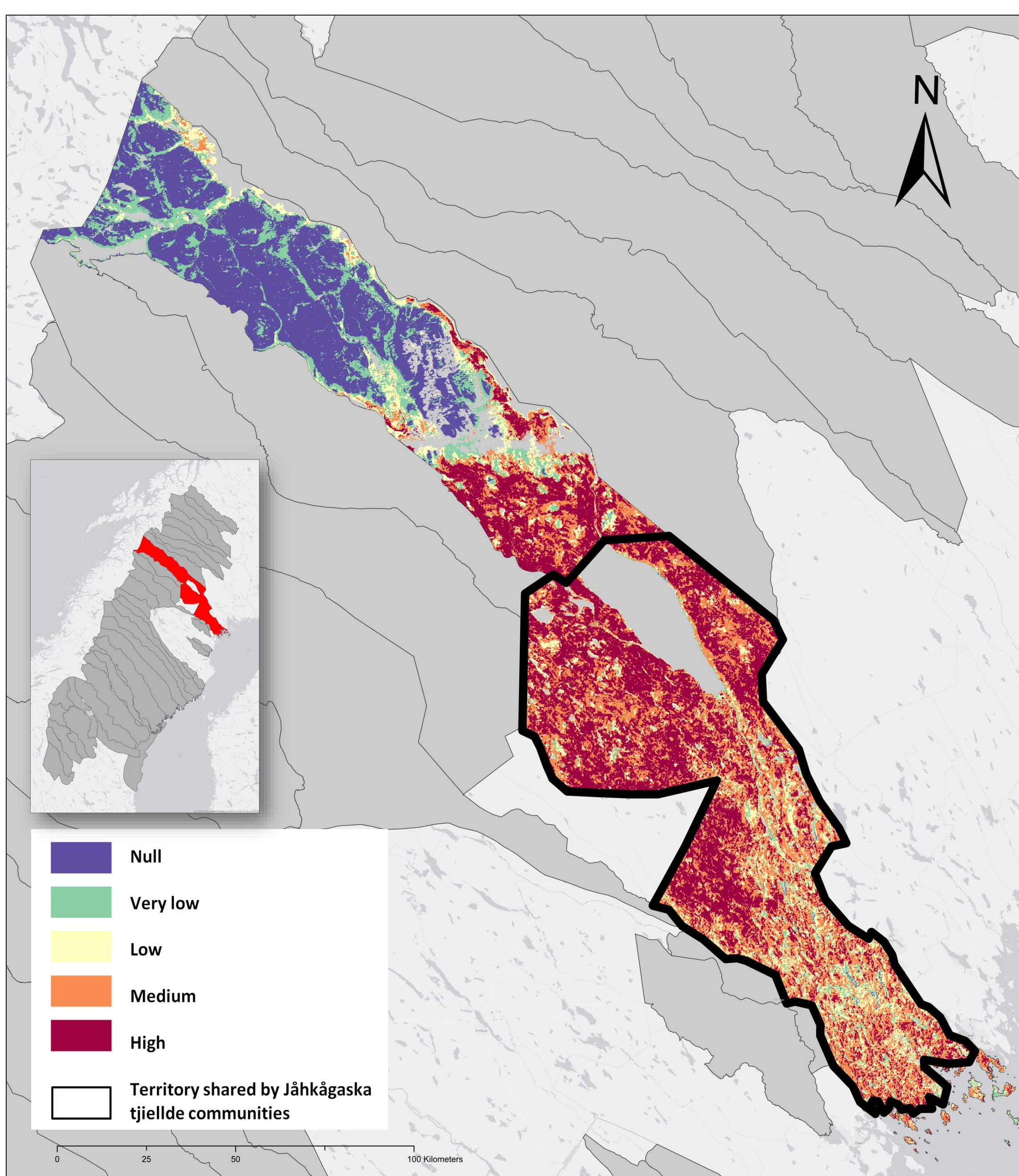


- During summer in Sweden, forest fires constitutes a frequent issue (figure 1)
- How saami reindeer herding communities (=samebyar), already challenged by landscape fragmentation and effects of increasing temperatures (AICA, 2004; Tyler, Turi et al., 2007) are geographically affected by fire risk?
- What are differences in fire risk between samebyar?

## 2 Data acquisition and fire factorization



## 5 Focus on Sirges and Jåhkagåska tjiellde lands

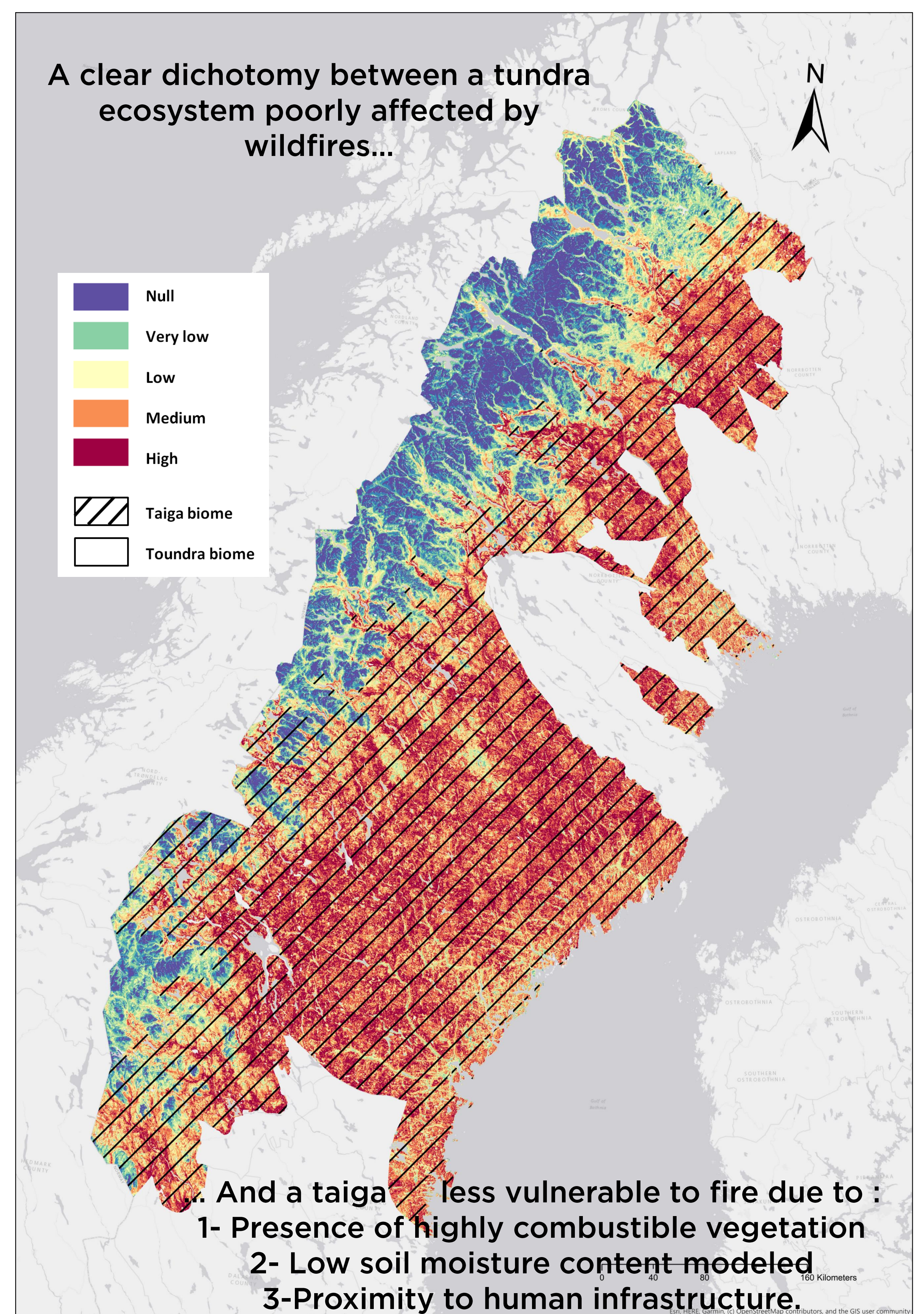


- 2/3 of Sirges sameby lands are impacted by risks of wildfires
- Common winter pastures shared with Jåhkågaska tjiellde sameby are likely to be affected by wildfires...
- ...Unlike summer pastures protected by the presence of low biomass, low fuel vegetation and topomorphological conditions that are not suitable for the spread of fire (steep slopes, high altitude).

## 3 Building the fire risk models

- Construction of intermediate indices: combustibility index, human occupancy index, topographic index and humidity index based on identified risk factors (Dagorne, 1994).
- Overlay of intermediate indices to obtain the final fire risk index.

## 4 Mapping the fire risk model at the regional scale



## 6 Discussion and ways of improving

- 38% of the fires located by the VIIRS satellite programme were detected in high fire risk areas: inconclusive results.
- The fire risk index used in this study was initially created for Mediterranean regions (Dagorne, 1994), it is important to establish risk factors specific to boreal regions (e. g. distinction between wetlands, drylands and arid areas and Abies spruce and pine forests)
- Studying links between forest management, human presence and wildfire risk
- Drafting a report for the Swedish Saami Parliament

### Sources and contact

**Bibliographie:**  
DAGORNE, A., DUCHE, Y. & OTTAVI, J.-Y. Protection des forêts contre l'incendie et système, 1994. d'information géographique : application à la commune d'Auribeau-sur-Siagne (Alpes Maritimes).  
HASSOL, Susan. Impacts of a warming Arctic-Arctic climate impact assessment. Cambridge University Press, 2004.  
TYLER, N. J. C., TURI, J. M., SUNDSET, M. A., et al. Saami reindeer pastoralism under climate change: applying a generalized framework for vulnerability studies to a sub-arctic social-ecological system. Global Environmental Change, 2007, vol. 17, no 2, p. 191-206.  
**SIG sources:** diva.gis.org/land.copernicus.eu/globiomass.org/earthexplorer.usgs.gov/effis.jrc.europa.eu  
**Contacts :** nolwenn.peron2@gmail.com; courault.romain@gmail.com; marianne.cohen@sorbonne-universite.fr