

# Belgium at the Science-Policy interface in the Antarctic : a protected area for environmental and scientific values

A. Wilmotte<sup>1</sup>, Q. Vanhellemont<sup>2</sup>, V. Savaglia<sup>1,3</sup>, S. Lambrechts<sup>4</sup>, E. Verleyen<sup>3</sup>, B. Tytgat<sup>3</sup>, W. Vyverman<sup>3</sup>, A. Willems<sup>4</sup>

1. InBios/Molecular Diversity and Ecology of Cyanobacteria, University of Liège, Liège, Belgium. 2. Institute of Natural Sciences, Brussels, Belgium. 3. Protistology and Aquatic Ecology, University of Ghent, Ghent, Belgium. 4. Laboratory for Microbiology, University of Ghent, Ghent, Belgium

The Protocol on Environmental Protection of Antarctica designates this continent as a “natural reserve, devoted to peace and science”. Its Annex V describes the creation process of a network of ‘Antarctic Specially Protected Areas’ (ASPAs), and lists the values that the Parties to the Protocol aim to protect, including outstanding environmental, scientific, historic, aesthetic or wilderness values.

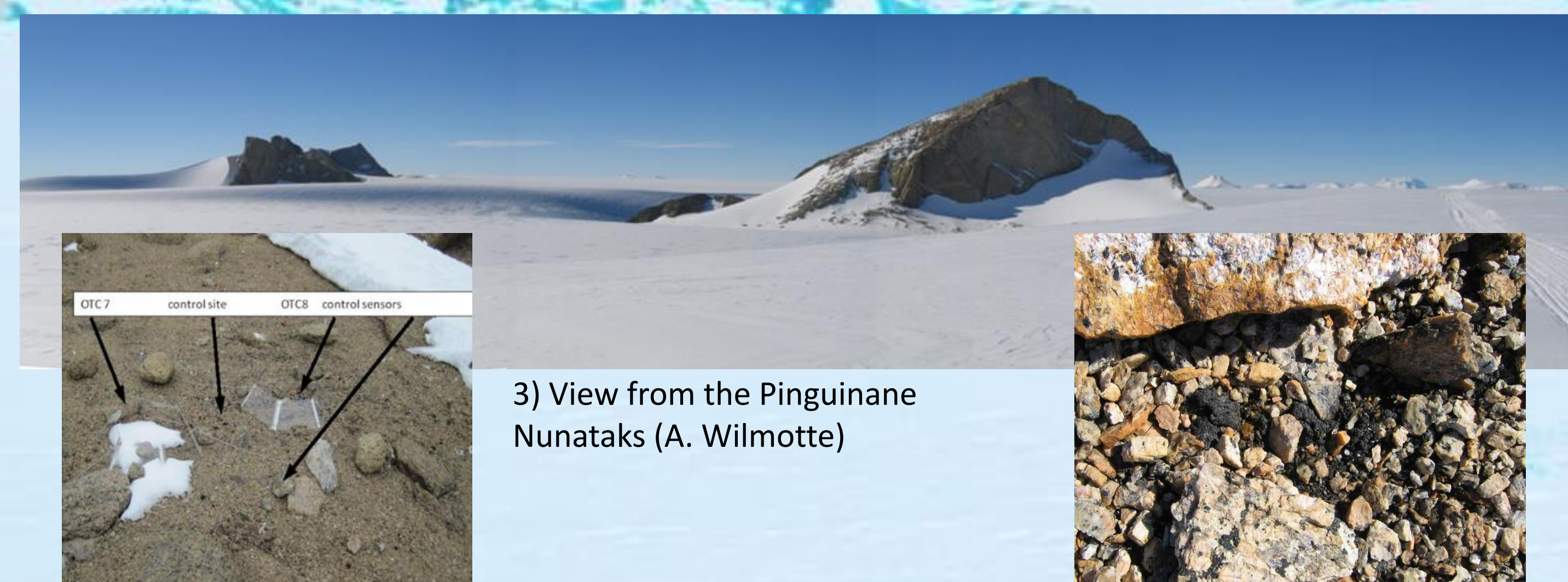
Since 2009, Belgium operates a research station, Princess Elisabeth, in a mountainous inland region of Dronning Maud Land, East Antarctica where air temperatures are constantly negative. Most of the existing life forms are microbial, except nesting birds (snow petrels and skuas), and are restricted to terrestrial microhabitats with suitable conditions (exposition to the sun, sheltering from katabatic winds, meltwater, stable bedrock).



2) Landscape of Eastern SRM (K. Peeters)



1) 7 sites of the ASPA Eastern Sør Rondane Mountains



3) View from the Pinguinane Nunataks (A. Wilmotte)

4) Open Top Chamber (OTC) on Tanngarden nunatak (V. Savaglia)



5) Biological Soil Crust, 5th Pinguinane Nunatak (A. Wilmotte)



6) Microbial mat on the shore of a Yuboku-dani lake (V. Savaglia)

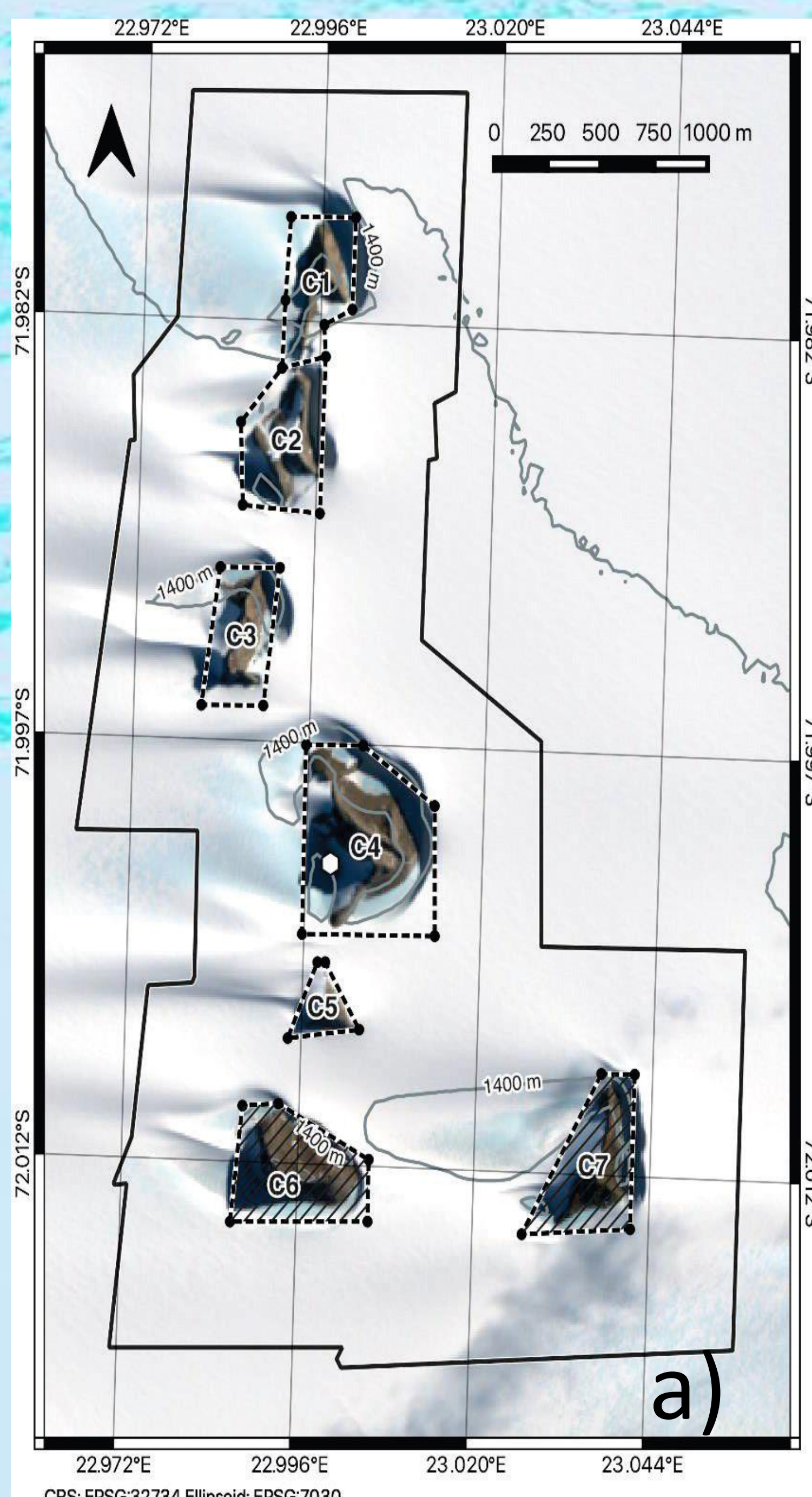


7) Lake in Yuboku-dani valley (V. Savaglia)

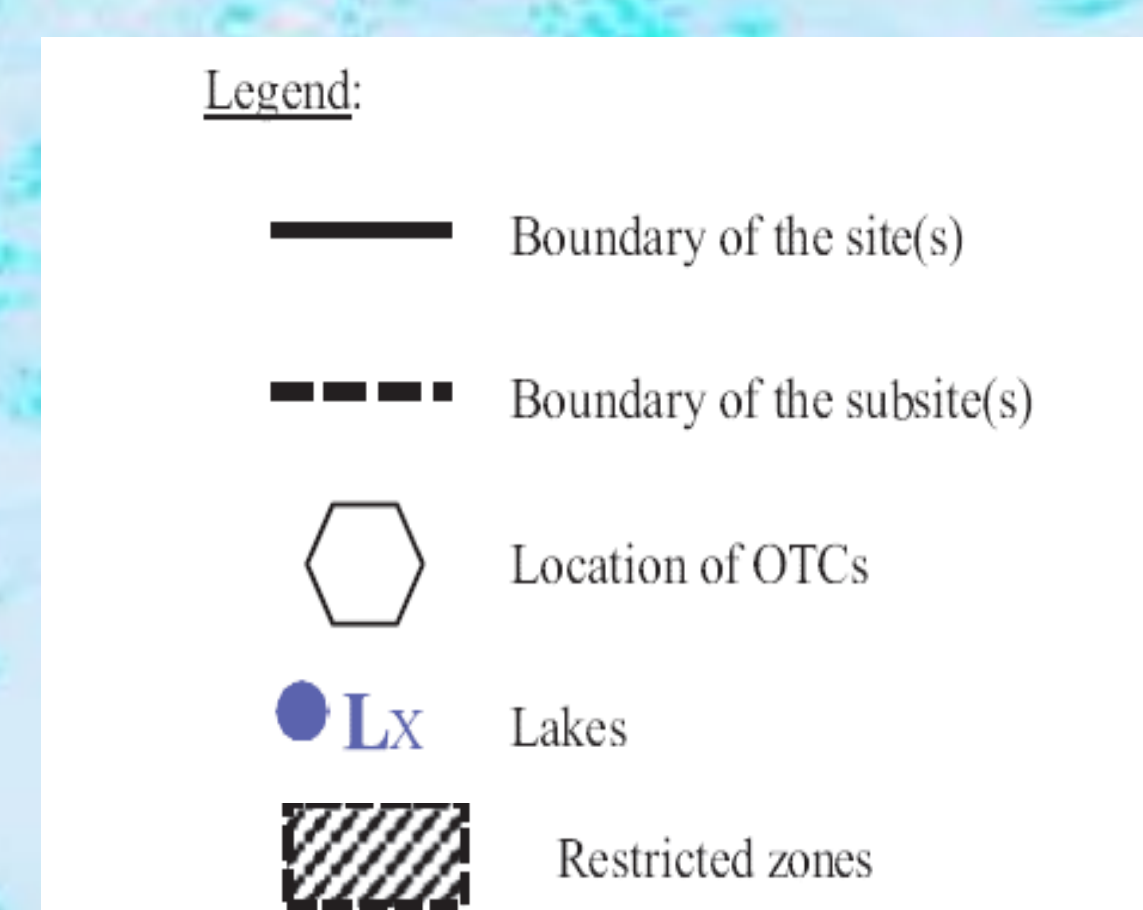
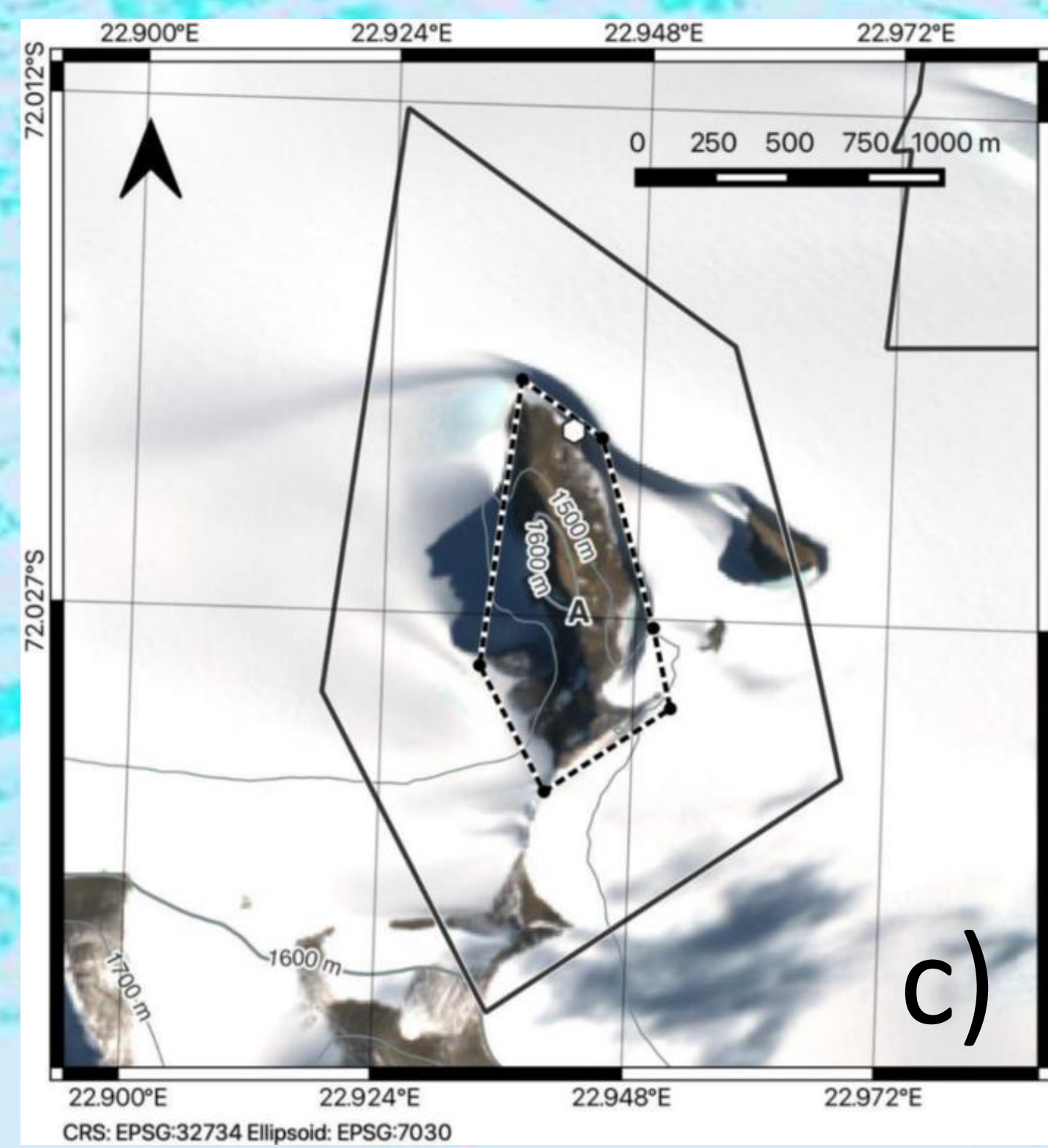
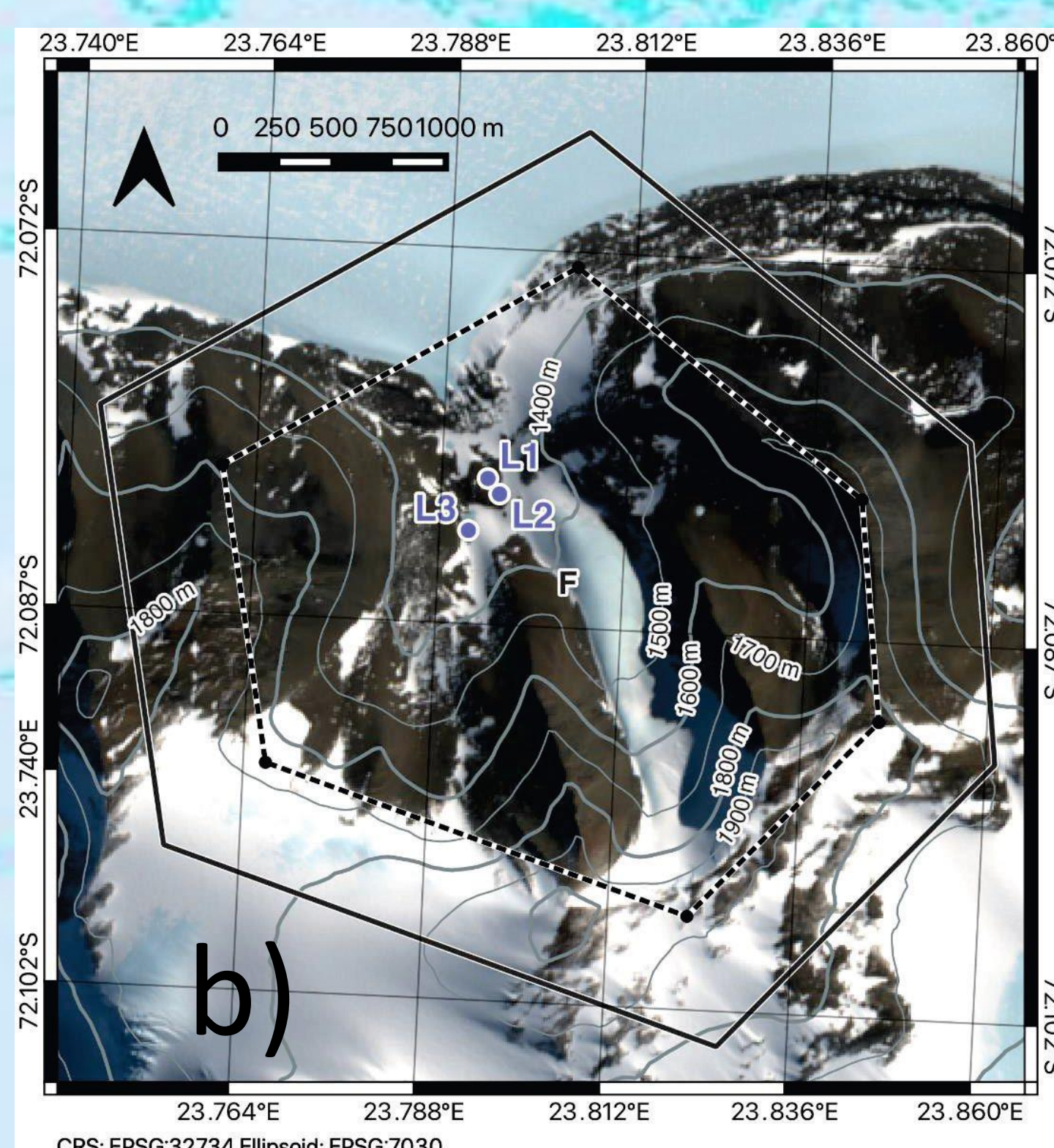
Thanks to the BelSPO projects ANTAR-IMPACT, BELDIVA and MICROBIAN, Belgian and international scientists have studied the molecular diversity, biogeography, and ecology of the prokaryotes and microeukaryotes in the soils, biofilms and crusts and started experimental work to mimic the impacts of climate change. A high biodiversity of microorganisms and invertebrates was observed, with endemic taxa, as well as large differences in communities geographically close but growing on different substrates.

The need to protect the biological communities from anthropogenic disturbances, introduction of microbial taxa from other regions or other sites in the region, trampling and oversampling has driven the initiative of Belgium to propose a multi-site Antarctic Specially Protected Area (ASPAs) in parts of the Eastern Sør Rondane Mountains (71°50′-72°S; 22°50′-23°50′E) including 7 ice-free areas. The ASPA site N° 179 and its Management Plan were adopted in 2023:

<https://www.ats.aq/devph/en/apa-database/197>.



Three examples of ASPA sub-sites: a) Pinguinane nunataks; b) Yuboku-dani valley; c) Brattnipane nunatak



Are you interested to participate to the Monitoring Plan? Please, contact Annick Wilmotte