

March 5, 2019

# ArCS' Program for Overseas Visits by Young Researchers Debriefing Session FY2019

## 「Biogeography of water bears (Tardigrada) in snow and ice」 (雪氷環境に生息するクマムシの地理的分布)

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(小野 誠仁 千葉大学大学院)



# Overview of Research Activity

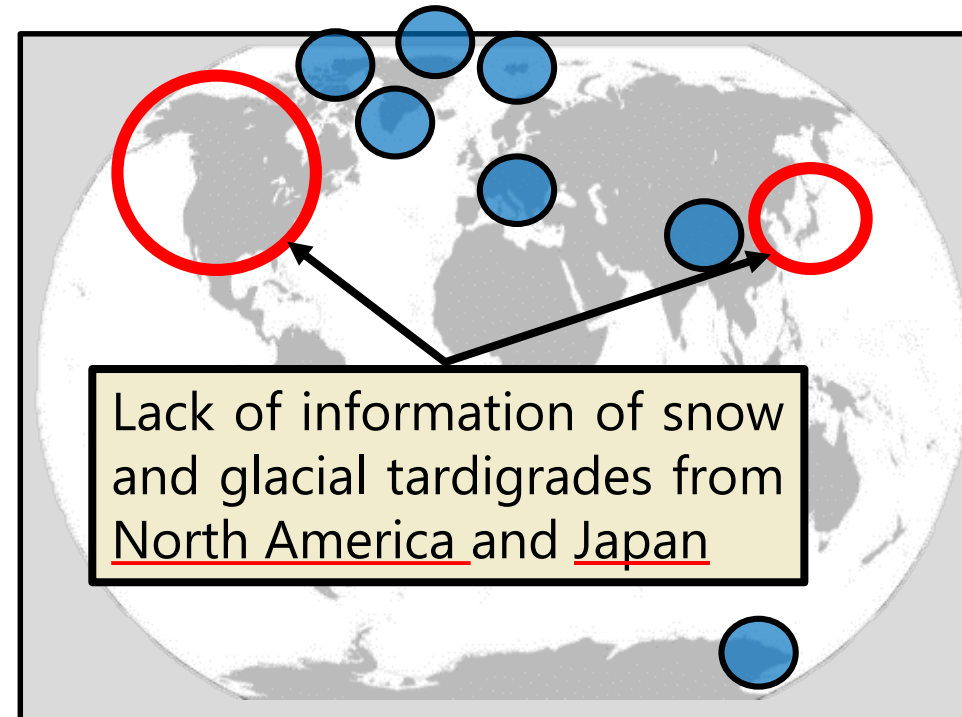
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Small invertebrates  
 Phylum : Tardigrada  
 Body length : 0.1 – 1.5 mm  
 They can survive in extreme environments and are widely distributed on Arctic glaciers

## Objectives of this study

Describe morphology of tardigrades from Alaskan glacier and a snow pack in Japan, and geographical distribution on the snow and ice

## Tardigrades



# Overview of Research Activity

## Research Theme

Diversity and geographical distribution of water bears (Tardigrada) in snow and ice in Arctic region

## Host research institution

Adam Mickiewicz University  
(Poznań, Poland)

## Host researcher

Krzysztof Zawierucha  
(PhD, Department of Animal  
Taxonomy and Ecology)

Adam Mickiewicz  
University



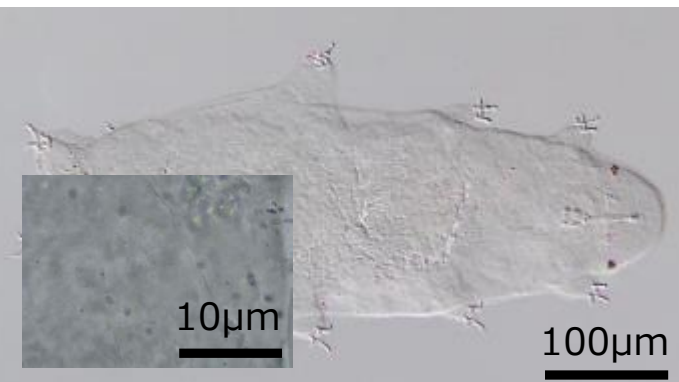
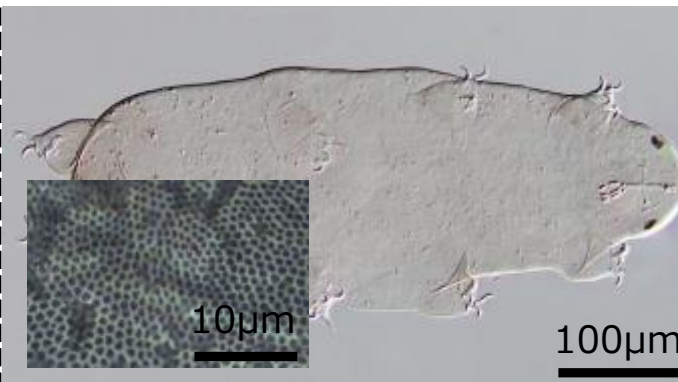

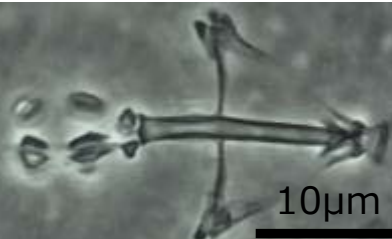



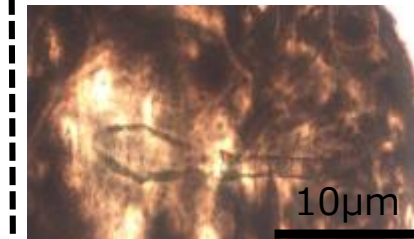
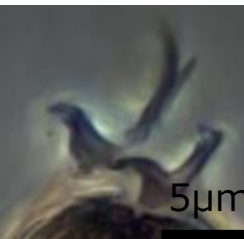
Group of Zawierucha  
(he is in the bottom right)



## What I did during stay (18<sup>th</sup> Sep. to 25<sup>th</sup> Nov., 2019)

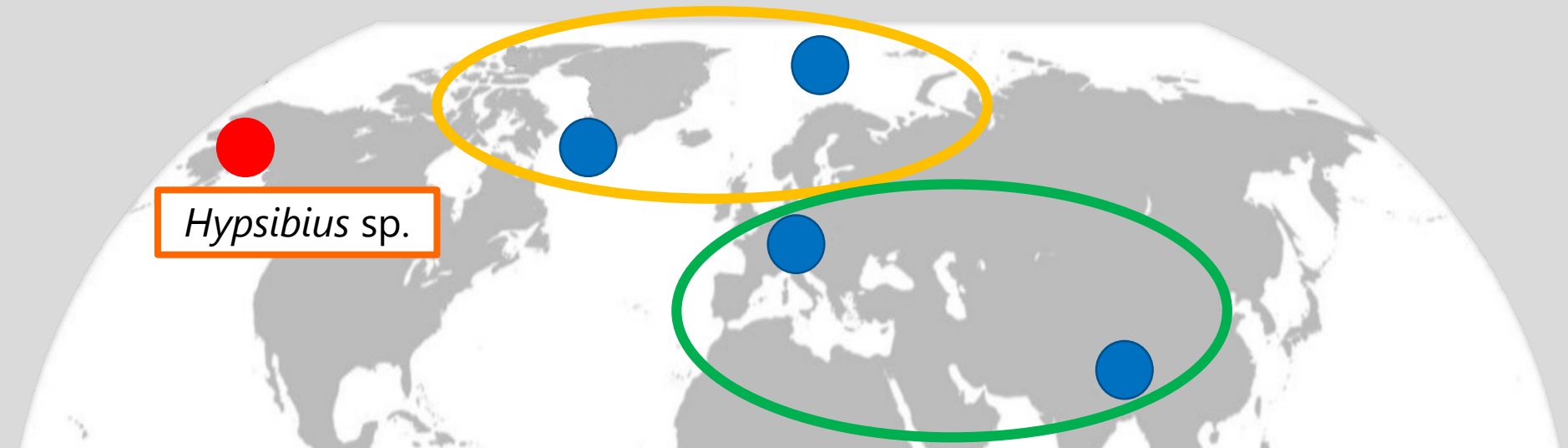
- ① Describe morphology of snow and glacier tardigrades
- ② Make phylogenetic tree by DNA analysis
- ③ Join a workshop on glacier microbes in cryoconite holes  
(held in Adam Mickiewicz University)

# Research Results

Snow tardigrades (Japan)		Glacial tardigrades (Alaska)
<i>Hypsibius</i> sp. (Smooth)	<i>Hypsibius</i> sp. (Reticular)	<i>Hypsibius</i> sp.
		
 	 	 

The tardigrades collected in Japan and Alaska were identified as species from the genus *Hypsibius*.

# Research Results



Alaskan tardigrades are not the same as other Arctic tardigrades  
→ Glacial tardigrades in Arctic are not cosmopolitan,  
and Alaskan tardigrades are endemic species

Although Alaskan tardigrades were morphologically closer to those of Europe and Himalayas compared with Arctic species, they are phylogenetically farther from European or Himalayan tardigrades than Arctic ones  
→ The morphological traits may be determined by environmental conditions

# Life and Experiences

Beautiful old town



Working with microscope



Enjoyed drinking wine together



My favorite food "Pierogi"



# Life and Experiences

○Attend the international workshop(8<sup>th</sup>-10<sup>th</sup> Nov.)



From Italy,  
Czech Republic,  
UK, Estonia  
and Poland



Try new  
method

○Interesting experiences in life

Play Chess



Jogging and Swimming!?



Only for men?



Thank you for listening!



Special thanks to ArCS and all the people I met in Poland !