

# Development of a Novel Borehole Heat Exchanger for Semi Deep Geothermal Energy System

Adib Kalantar, Fredrik Skaug Fadnes, Mohsen Assadi

**Adib Kalantar Ph.D**

*Director of Technology Solutions MuoviTech Int.*

[adib.kalantar@muovitech.com](mailto:adib.kalantar@muovitech.com)

Nov 2024

# Overview

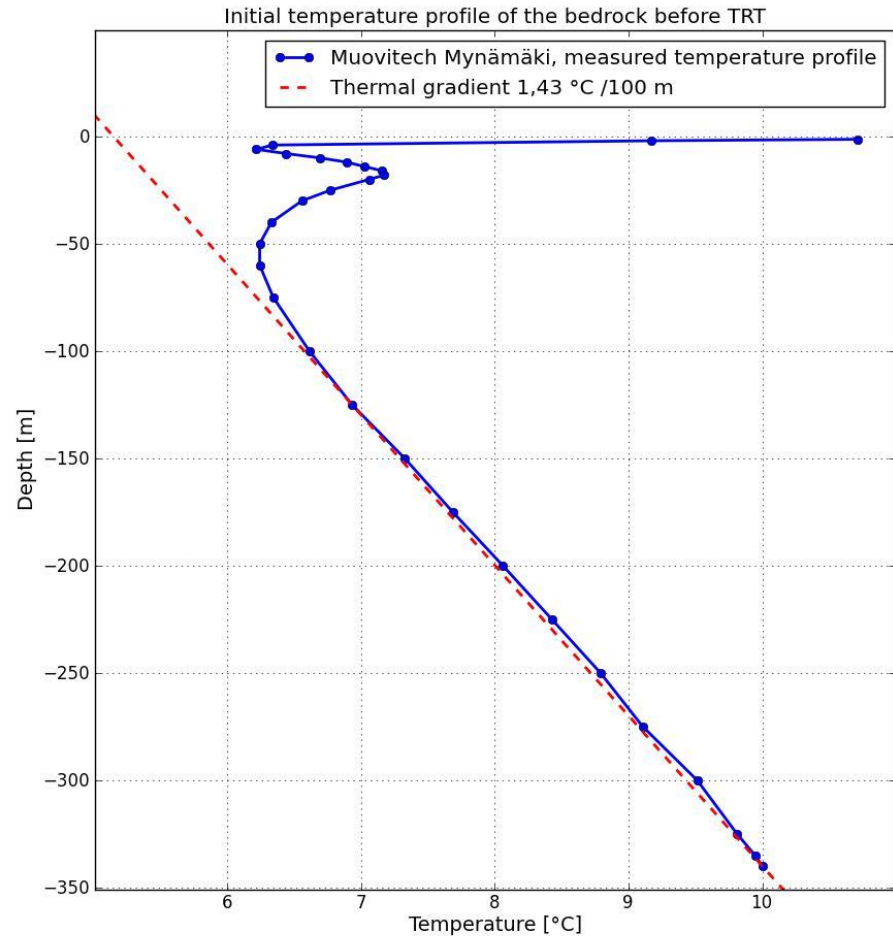


# Product Range



# Motivation

- Temperature increases with increasing depth
- Limited available area
- Economic optimization via hybridization



# Design Key Factors

Flow rate

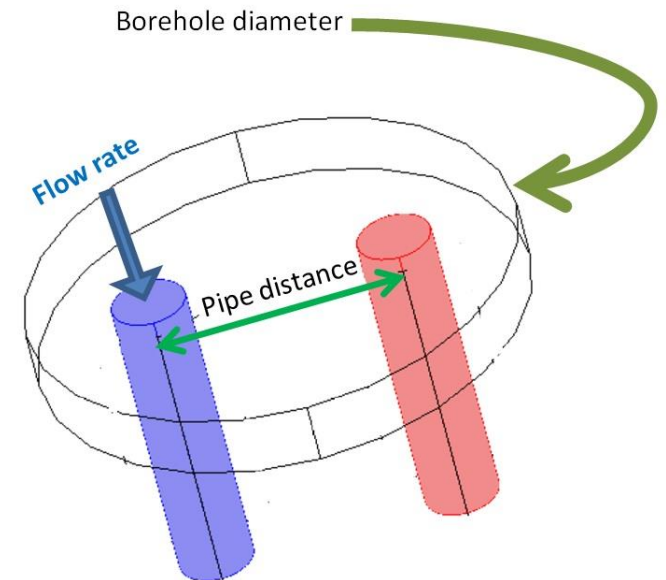
Pressure drop

Highest / lowest fluid temperature

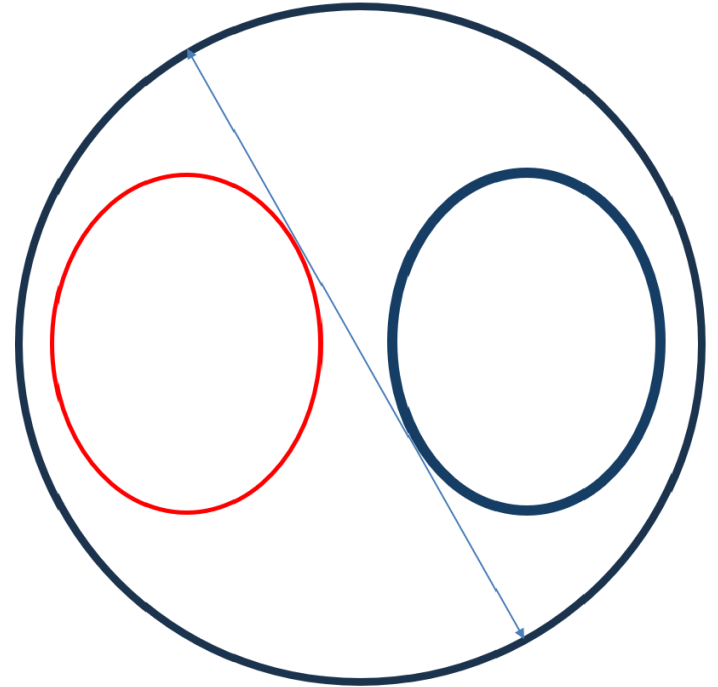
Borehole diameter & depth

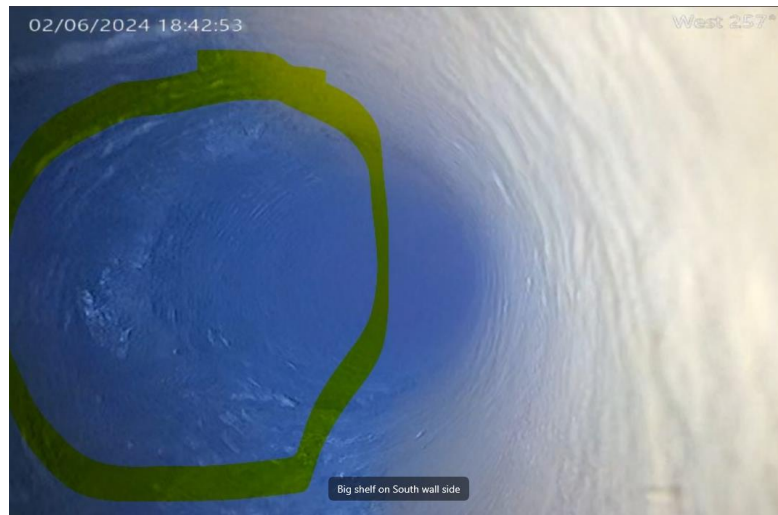
Grouting

Stress analysis

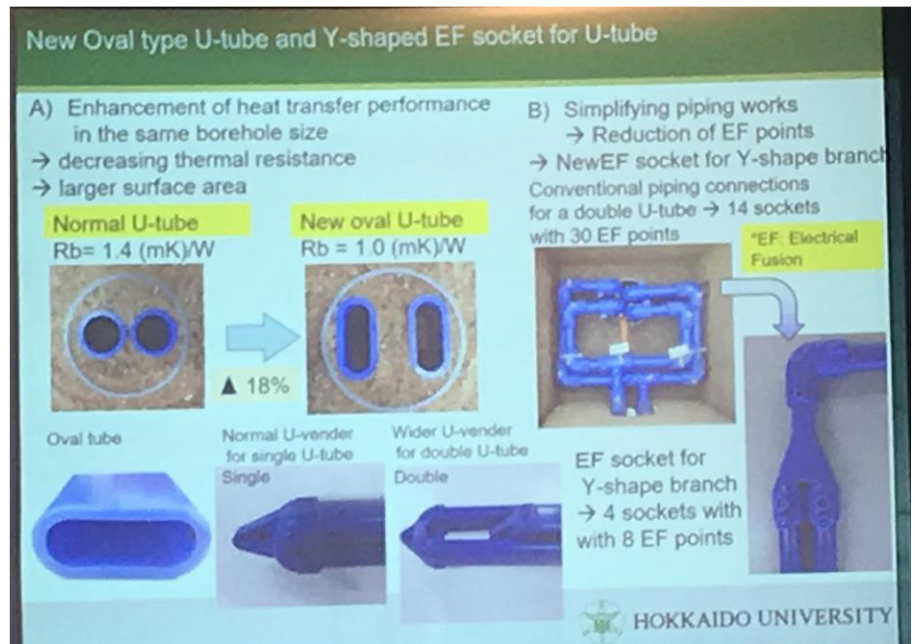
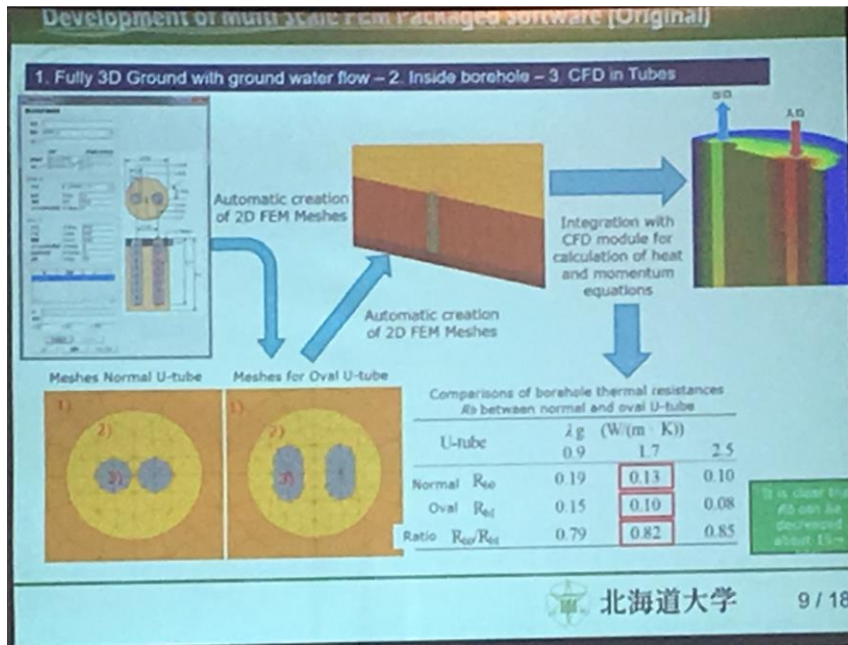


# E-Turbo Collectors





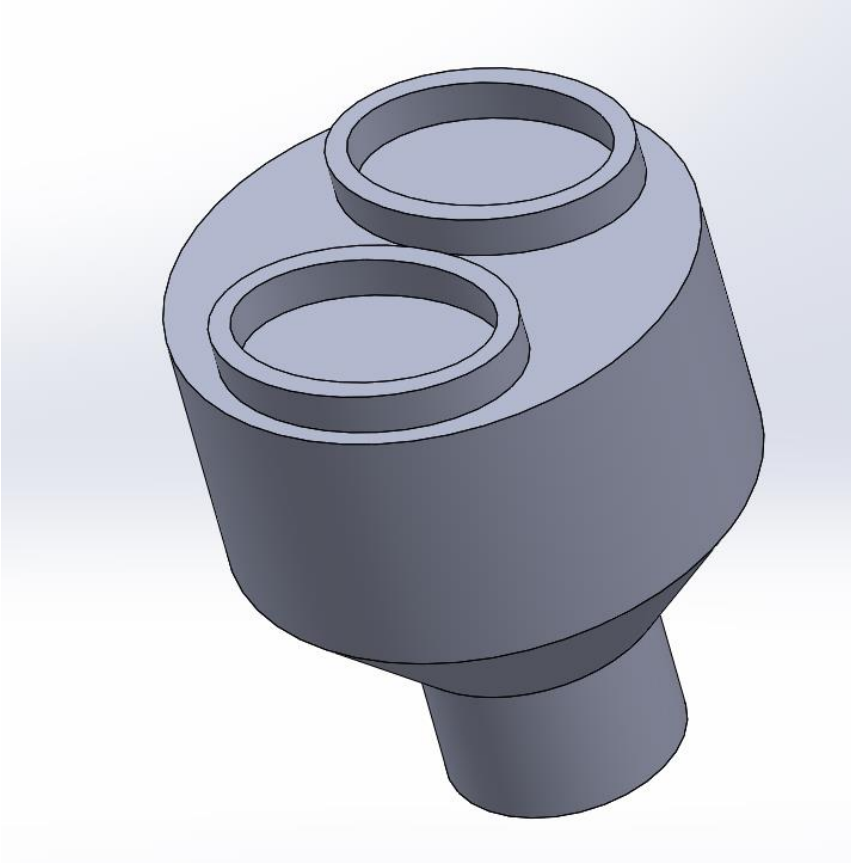
# Coincident Japanese Research



Ref: Prof. Katsunori Nagano from Hokkaido University presented in the Annex 27 Vancouver Sep 2018



# Thank you!



## Questions !