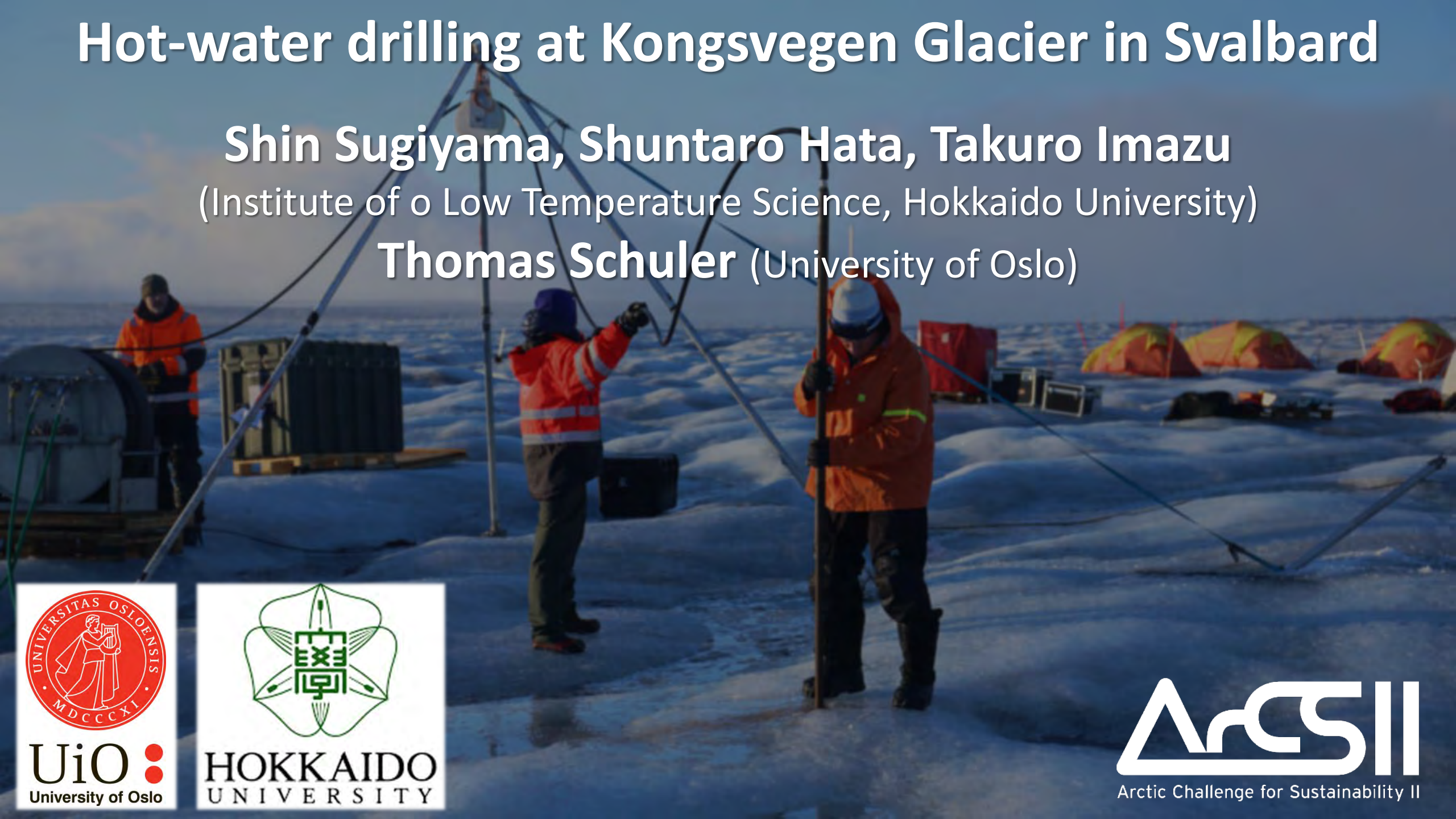


Hot-water drilling at Kongsvegen Glacier in Svalbard

Shin Sugiyama, Shuntaro Hata, Takuro Imazu

(Institute of Low Temperature Science, Hokkaido University)

Thomas Schuler (University of Oslo)



UiO
University of Oslo



HOKKAIDO
UNIVERSITY



Arctic Challenge for Sustainability II

Glacier field course in UNIS



May 2018 Svalbard

Cryosphere Modeling course in Oslo



January 2016, Oslo

4 Strategic Goals

2 Priority Subjects

Strategic Goal ①



**Advanced
Observation of
Arctic
Environmental
Change**

Strategic Goal ②



**Improvement of
Weather and
Climate
Prediction**

Strategic Goal ③



**Impact of Arctic
Environmental
Change on
Society**

Strategic Goal ④



**Legal/Policy
Response and
Research
Implementation for
a Sustainable Arctic**

Priority Subject ①



**Capacity
Building and
Research
Promotion**

Priority Subject ②



**Strategic
Dissemination of
Arctic
Information**



Atmosphere



Teleconnection



Human Society



International Law



Ocean



Climate Prediction



Arctic Sea Routes



International Relations



Cryosphere



Coastal Environments



Land

11 Research Programs

**Oslo-Hokkaido
exchange program**



**Research
Infrastructures**

**International
Collaboration Site**

Research Vessel

**Earth Observation
Satellite Data**

Arctic Data archive System

Promote advanced and interdisciplinary research and social implementation

ArCS II International Research Exchange Program

"Multi-scale and multi-method assessment of rapid glacier and ice sheet changes in the Arctic"



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Glacier research project in Svalbard

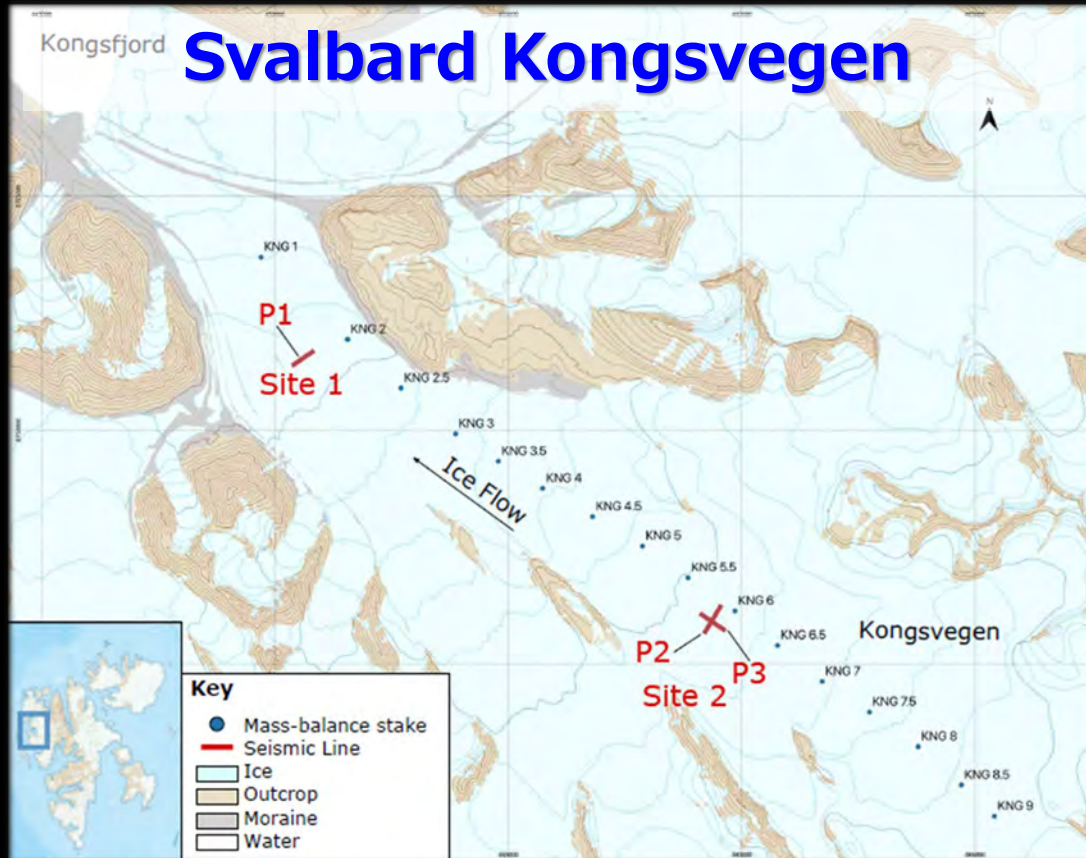
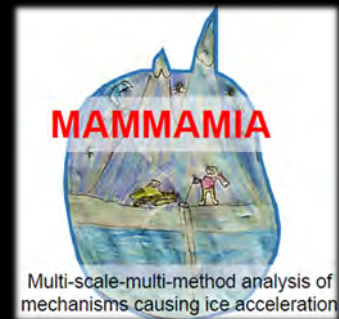
Multi-scale Multi-Method Assessment of Mechanisms for Ice Acceleration

Project PI : **Thomas Schuler (University of Oslo)**

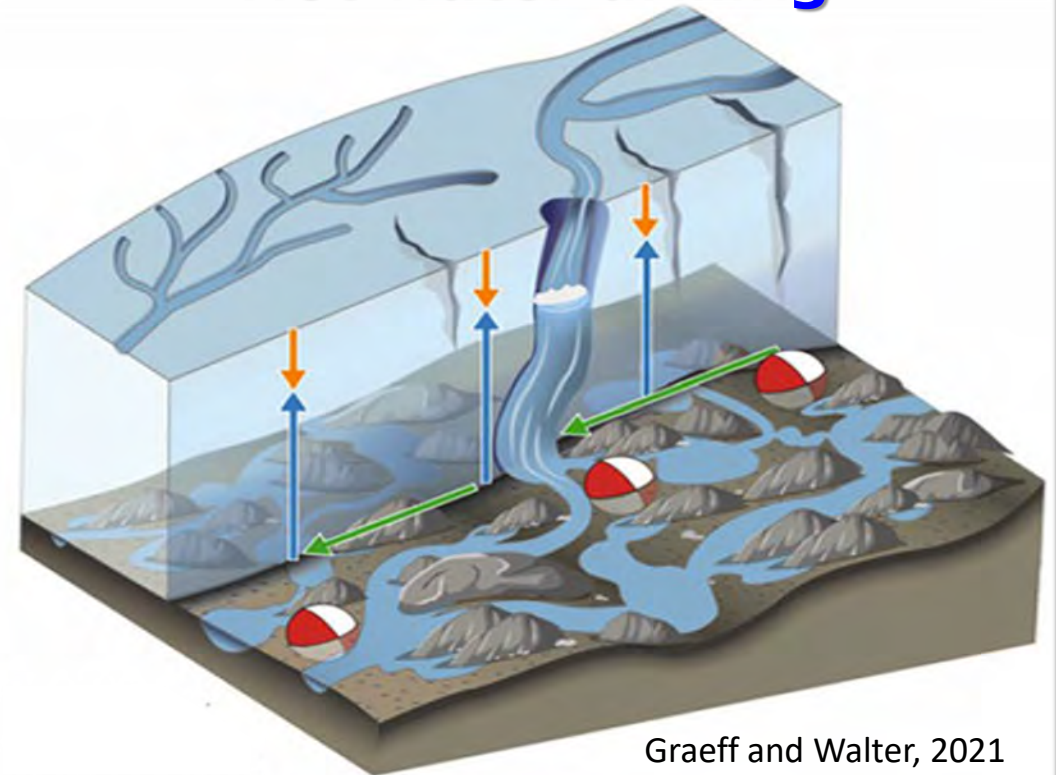
Study theme : Glacier dynamics, Surging glacier, Glacier base

Project period : 2020–2024

Collaborators : NPI, UNIS, Hokkaido University, Grenoble University

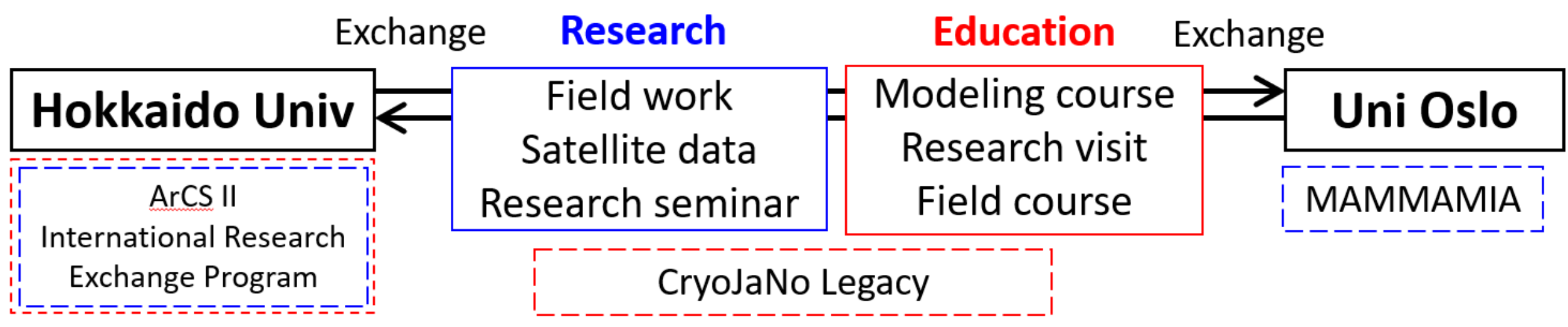


Hot water drilling



Graeff and Walter, 2021

ArCS II International Research Exchange Program — Overview —



Glacier field work



Research seminar



Modeling course



Field course



⇒ International collaboration for **glacier research** and **capacity building**

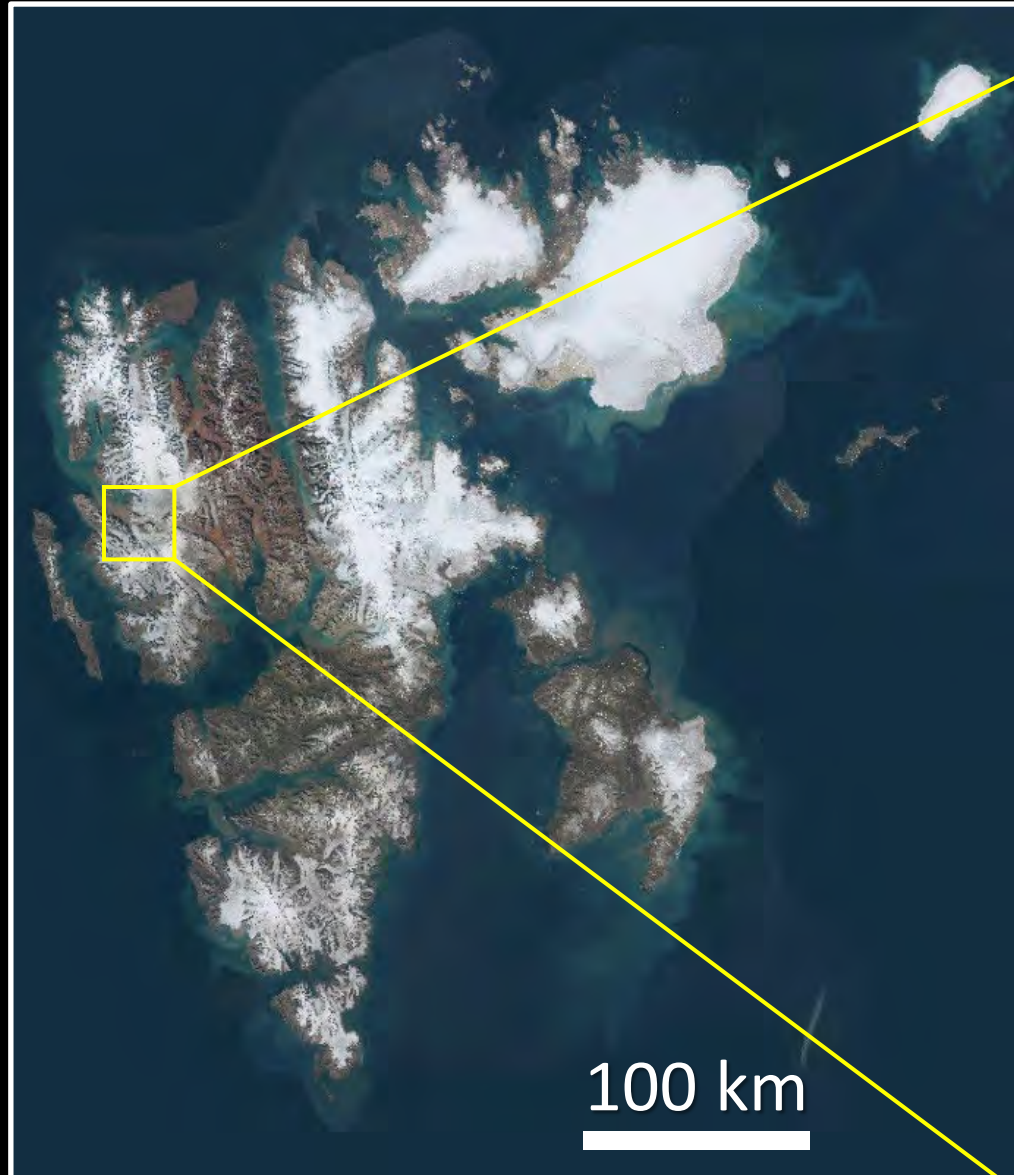
Field activity on Kongsvegen (April 2024)

今津（北大）が観測に参加
（18日氷河分科会にて報告）



April 2024, Kongsvegen

Study site: Kongsvegen in Svalbard

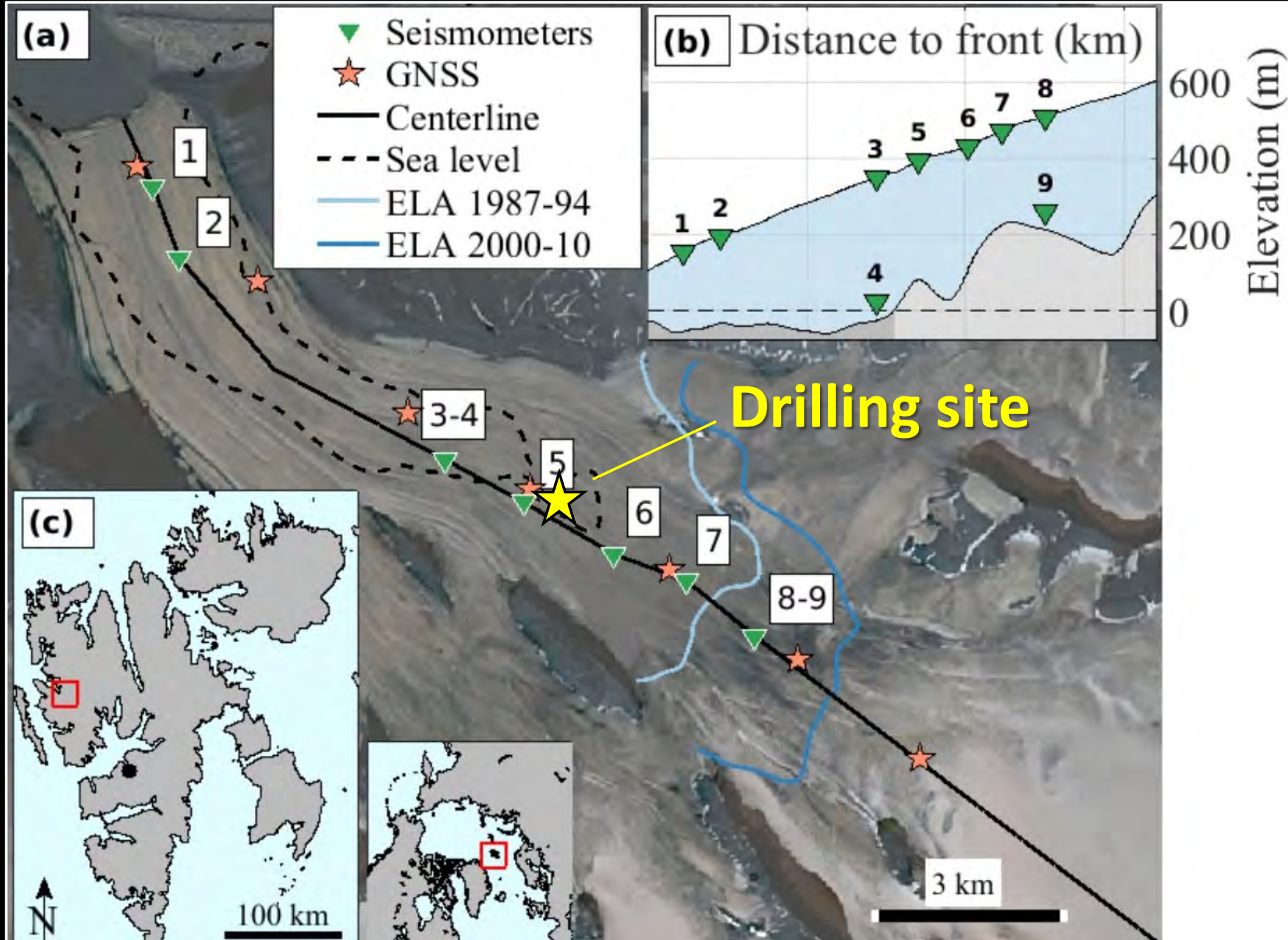




Norwegian Polar Institute



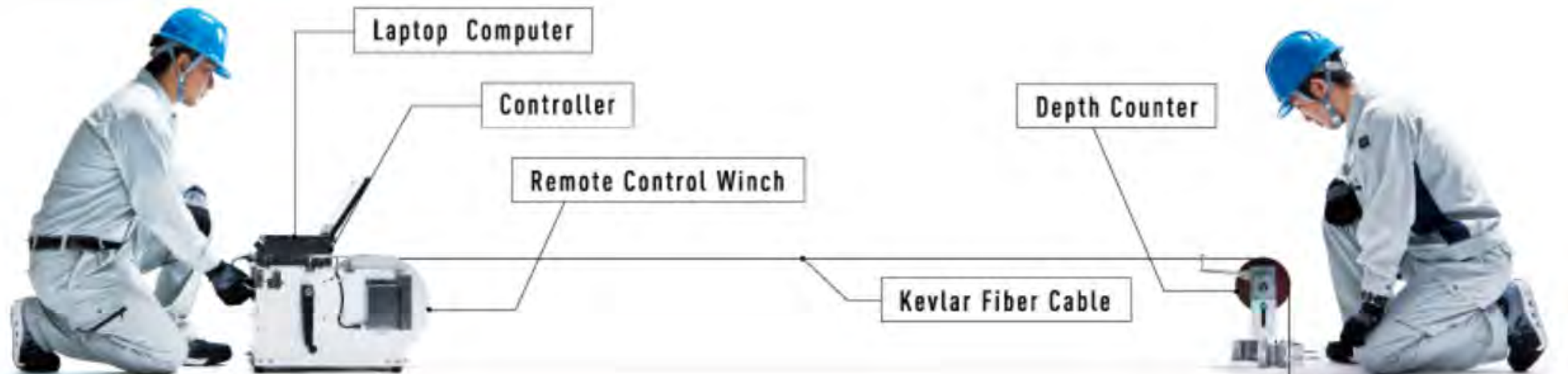
Ny Ålesund Research Base



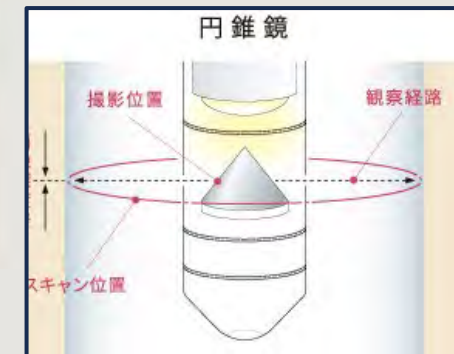
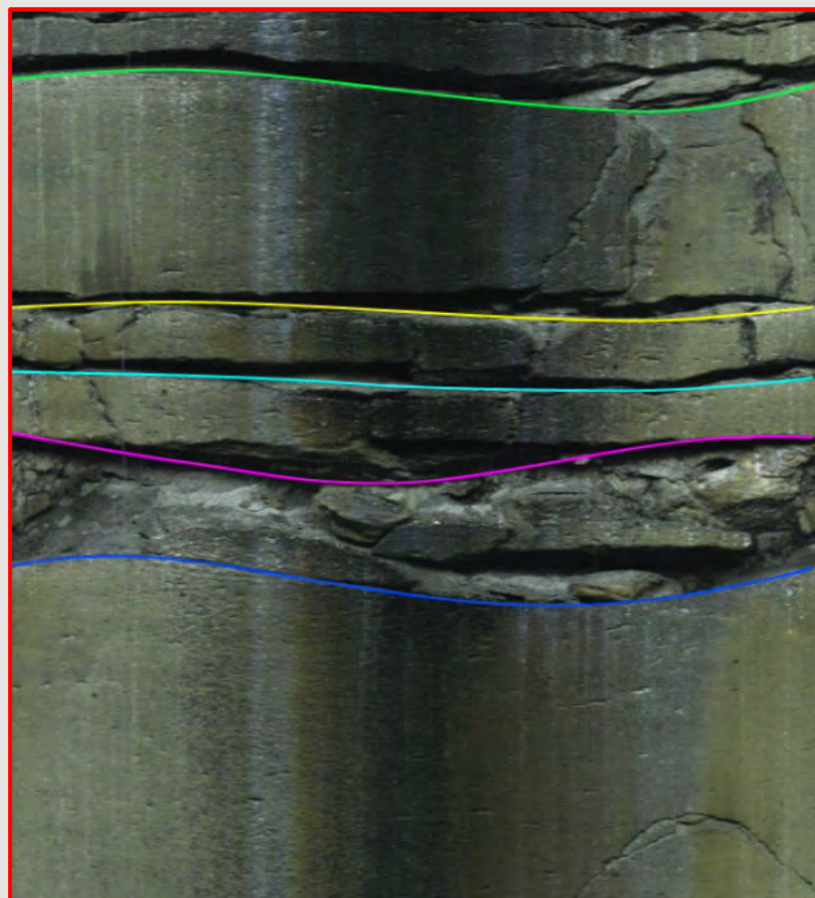
Hot-water drilling at Kongsvegen Glacier (August 2024)



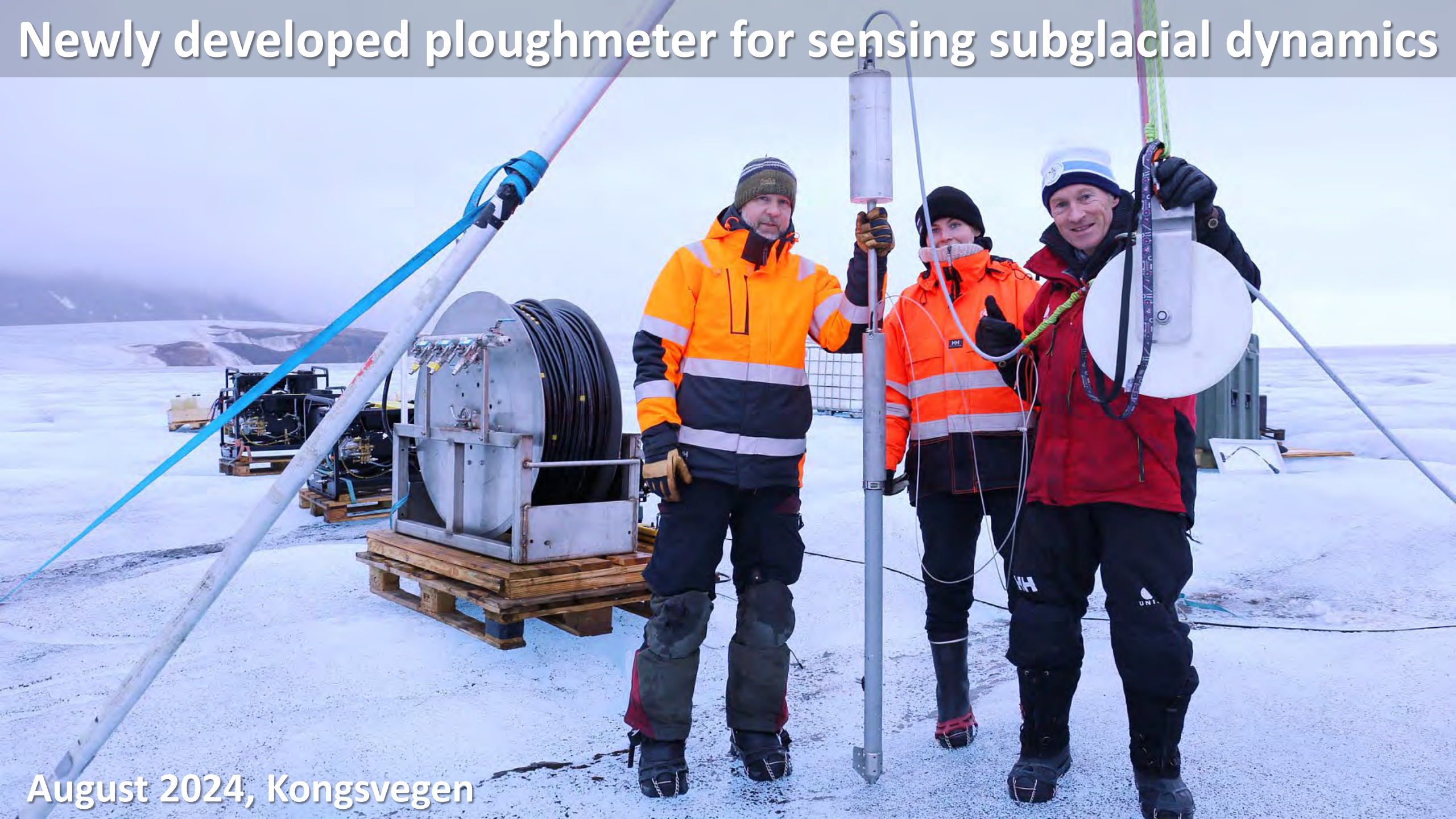
August 2024, Kongsvegen



円錐鏡を使った
360度展開カメラ
(株)レアックス社製



Newly developed ploughmeter for sensing subglacial dynamics



August 2024, Kongsvegen



ヘリ輸送

AUG 12

6:00

12:00

輸送

掘削準備



仮眠

AUG 13

0:00

睡眠



ヘリ待ち

12:00

掘削・観測・撤収



下山

AUG 14

0:00



ピックアップ

12:00

下山



まとめ

1. 北大・オスロ大の研究教育共同プログラム
2. 2024年4月にKongsvegenの観測参加（今津）
3. 2024年8月に熱水掘削（杉山、波多）
4. 360度カメラによる掘削孔壁面の全層撮影