

Welcome to DUAL-CRYO : Dual-band Altimetry of the Cryosphere

Workshop Starts at 14:00 UTC

13-14 January 2021



Workshop housekeeping

- Please keep mic and camera OFF when not speaking/presenting
- To ask a question/make a comment please type '?' or 'question' or 'comment' in chat and wait for the chair to allow you to speak, then you can unmute your mic
- When speaking do open your camera if you like

Presentations / recording

- **The workshop will be recorded for the sole purposes of preparing the WS report (the record will not be made public)**
- We would like to share the presentation via the web site – please, if not yet done, **reply to e-mail from ESA Conference Bureau asking for your consent to share the presentation**

Workshop Objectives

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- Review the state of the art in dual-band altimetry of the cryosphere (Ku, Ka, and Laser)
- Identify the relevant campaign data (in-situ, airborne, and satellite)
- Discuss and summarise processing techniques, algorithms, and limitations for dual-band altimetry of the cryosphere
- Identify gaps in the technical knowledge and observational data, and make recommendations for further studies

The expected Workshop outputs will be a white paper summarising the state of the art on dual-band altimetry of the cryosphere, to be submitted for peer review, as well as a roadmap for improvement of the scientific readiness level of Ku and Ka algorithms over Ice Sheets and Sea ice.

Johan Nilsson

- What near surface processes can we measure using dual-frequency and at what accuracy?
- How can we use dual-frequency altimetry to correct the long-term radar altimetry record?
- What are the main technical challenges and/or improvements needed to obtain these goals?

Henriette Skourup

- how to design the most optimal field campaigns in support of CRISTAL
- how to gain the technical knowledge of dual-frequency penetration depths identified as gaps
- how to identify other related studies which would benefit from use of the dual-frequencies, e.g. can we use the information of dual-frequencies to obtain sea surface roughness, sea ice types and other sea and land ice properties.

SEED QUESTIONS (cont.)

Sebastian Simonsen

Different bands result in different scattering horizon:

- How can we estimate firn air content?
- How can we estimate snowfall on ice sheet scales?
- How can we directly measure mass balance?

Technical challenges for dual radar altimeters:

- How to ensure comparable footprint-size?
- How to ensure co-located measurements?
- How does the surface roughness effect the measurement?