Direction-of-Arrival Analysis of Airborne Ice Depth Sounder Data

In this paper, we analyze the direction-of-arrival (DOA) of the ice-sheet data collected over Jakobshavn Glacier with the airborne Multichannel Radar Depth Sounder (MCRDS) during the 2006 field season. We extracted weak ice-bed echoes buried in signals scattered by the rough surface of the fast-flowing Jakobshavn Glacier by analyzing the DOA of signals received with a five-element receive-antenna array. This allowed us to obtain ice thickness information, which is a key parameter when generating bed topography of glaciers. We also estimated ice-bed roughness and bed slope from the combined analysis of the DOA and radar waveforms. The bed slope is about 8° and the roughness in terms of rms slope is about 16°.

General information
State: Published
Organisations: National Space Institute, Microwaves and Remote Sensing, University of Kansas
Authors: Nielsen, U. (Intern), Yan, J. (Ekstern), Gogineni, S. (Ekstern), Dall, J. (Intern)
Pages: 2239 - 2249
Publication date: 2017
Main Research Area: Technical/natural sciences

Publication information
Volume: 55
Issue number: 4
ISSN (Print): 0196-2892
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 5.84 SJR 2.649 SNIP 2.774
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 5.45 SJR 2.616 SNIP 3.184
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): SJR 2.486 SNIP 3.107 CiteScore 4.7
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): SJR 2.445 SNIP 3.459 CiteScore 4.71
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): SJR 2.283 SNIP 3.227 CiteScore 4.22
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): SJR 2.337 SNIP 3.833 CiteScore 4.26
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): SJR 2.249 SNIP 2.988 CiteScore 3.85
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 2
Scopus rating (2010): SJR 2.14 SNIP 2.932
Web of Science (2010): Indexed yes
BFI (2009): BFI-level 2
Scopus rating (2009): SJR 2.85 SNIP 2.964
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1