

in which have the second of the second of

Acoustic detection of macroalgae and glaciers mapping in Arctic fjords

Svalbard, July 2017



INSTITUTE OF OCEANOLOGY POLISH ACADEMY OF SCIENCES

Svalbard fjords 2017

Isfjorden Longyearbyen

omsund

MAKAK Project Macroalgae mapping

> AWAKE 2 Glaciers evolution



Svalbard Storfjorden

80 km

A N

NORBIT iLiDAR LASER Integrated Mobile LiDAR System







Data Acquisition in QINSy

- 11 -

Ing. Tax. Birst. That. One

0 -

alt gr

100 00

G

N

M

-

shift O



0

Data Processing in QIMERa and Fledermaus





0.0 km

5.0 km

10.0 km

15.0 km

- - 10-

Isfjorden 71 km of survey lines

LONGYEARBYEN

NORBIT® SAAB group company SAAB group compan



Fledermaus and water column data example with macroalgae

Fledermaus								
Eile <u>E</u> xploration <u>C</u> ontrols <u>R</u> endering Import	Cre <u>a</u> te <u>T</u> ools <u>H</u> elp							
Macroal the water of After processing one can extrac from ce	gae visible in column of MB WTC data in I of macroalgae entral beams	ES Matlab, layer						
0m <u>21</u> m .	22m .	23m	. 24m	. 25m	. 26m	Time: 07/15/2017 18:24:35.3 Rate: 4 1s		
Exag:	3× ᢏ ヽ゚ *) 🖻 💩	Midwater Fan B	ounds Geo-Referencing Tim	e Info				
Isf5_1m_tdcl ✓ Isf5 1m tdcl-Draped.sd		Fan Display Options			Signal Options			
Area5_line100_2_b257.sd ✓ Area5_line100_2_fanTIme.sd*		Pixel Gap: 1 Auto Render beam pattern			● Amplitude ○ Power ○ Sv ○ Ts			
		Show Edges	Render Points Radius 0.8					
		Beam 1 512						
	GPS I	Range 0.0						
INSTITUTE OF OCEANOL POLISH ACADEMY OF SCIE	OGY	Connect 01	00_07_15_17_181959_Isf - 0002_System	mId_1_merged	1.0	373.2		

Macroalgae spatial distribution estimations



14°46'E 14°46'E 14°47'E 14°47'E 14°48'E 14°48'E 14°49'E





Area 3





Glaciers mapping in Hornsund fjord



T

All the main tidewater glacier fronts were mapped also above water using iLidar

Terlbreen

Hansbreen

Hornsund fjord

-150 m -

-170 m

1.0 km 4.0 km 7.0 km



Storbreen

marinbreen

Hornbreen

32 m ¬

0 m -

-50 m

-100 m





NORBIT

- explore more -

NORBIT

SVALBARD ENVIRONMENTAI PROTECTION FUND





INSTITUTE OF OCEANOLOGY POLISH ACADEMY OF SCIENCES

Made by A.Kruss