

The Mutual Influence of the Ocean and the Atmosphere

A program of investigations into the mutual influence of the oceans of the world and the atmosphere has been mapped out in the Soviet Union. These studies are aimed at long-term weather forecasts, the elucidation of the reasons for climatic fluctuations, forecasts of the ice regime in the Arctic seas, and a better organization of fishing, and hunting sea-animals.

Concerning the natural experiments suggested by the Arctic and Antarctic Scientific Research Institute (whose program has been discussed in the U.S.S.R. Geographical Society), the head of the Hydrological Regime Sector, Yevgeny Nikiforov, M.Sc. (Geography) said that a vast territory will be subjected to observations conducted according to special techniques. The natural experiment zone will embrace the northern parts of the Atlantic and the Pacific, the Arctic Ocean, and the Norwegian, Greenland, and Barents seas.

The investigations will be conducted from research vessels and planes equipped with special scientific instrumentation and automatic meteorological stations. At the same time, the natural experiment will extend over territories of the continents adjacent to the oceans and seas. During these observations it is planned to use the entire network of meteorological stations, and the North Pole drifting stations; special high-latitude expeditions will be launched.

Novosti Press Agency

Ice Islands, 1967

Five large ice islands broke away from the Ward Hunt Ice Shelf between 19 August 1961 and 18 April 1962.¹ The largest of these was WH-5, which drifted through Nares Channel and eventually broke up.²

The Polar Continental Shelf Project (PCSP) has been following the movements of the four remaining ice islands WH-1, WH-2, WH-3, and WH-4 since the summer of 1963. By 1967 two of these islands, WH-3 and WH-4, had drifted out of the effective range of PCSP aircraft but the U.S. Naval Oceanographic Office "Birds Eye" flight, 3 August 1967, sighted an ice island (probably WH-4) at 71°55'N, 133°50'W. Previous to this the same organization located what was thought to be WH-3 at 73°28'N, 128°30'W on 3

April 1967. The positions of the Ward Hunt ice islands located during PCSP sea ice flights are shown in Fig. 1 and Table 1.

Of the four ice islands making up the WH-group, WH-3 and WH-4 are the easiest to identify. WH-3 has a "suture" line running across one end of the ice island. WH-4 has a Jamesway hut near one corner and 10 empty 45-gallon gasoline drums lying in the shape of an "L" near the opposite corner. Because of the difficulties of positively identifying WH-1 and WH-2, PCSP proposed a program to set up markers on both these islands.

The first attempt was to mark WH-1, and 5 clusters of gasoline drums, set about 30 m. apart in the form of a cross, were erected there on 26 March 1967. At that time WH-1 was at 74°48'N, 124°15'W. Each cluster consists of 8 empty 45-gallon drums banded together in the form of a pyramid. This ice island was located a number of times during the summer of 1967 and was last seen 6 October 1967 when the PCSP sea ice survey aircraft located it at 74°30'N, 123°35'W. At that time the one corner impinged on the coast of Banks Island. The clusters had fallen on their sides and were partially covered with snow.

Attempts to set out a characteristic array of drums to act as radar markers on WH-2 were not successful during the 1967 field season but the experiment will be tried again in 1968. An ice island, probably WH-2, was located at 79°22'N, 107°W, on 3 April 1967 during a U.S. "Birds Eye" flight.

In addition to marking the large ice island WH-1, PCSP set out markers on two smaller islands in 1967. The first of these attempts was initiated after the 3 April "Birds Eye" flight had found that the extreme western portion of the Ward Hunt Ice Shelf had broken off and had moved 10 to 30 m. away from its original position. It is most likely that this same island (subsequently referred to as WH-6) was the one located by PCSP at 83°02'N, 79°50'W (30 miles southwest of its origin) on 20 May 1967. At this time 8 empty 45-gallon gasoline drums were left in a haphazard arrangement near the centre of the 3 by 4½ mile ice island. These 8 drums along with others to be brought to WH-6 on subsequent visits were to be set up in a characteristic pattern. However, the island was not reached again although a number of attempts were made.

The last ice island marked in 1967 was a small fragment approximately 1600 m. square. It is suggested that this fragment be named Alert No. 1 (LT-1) because it was discovered and marked near Alert. On 1

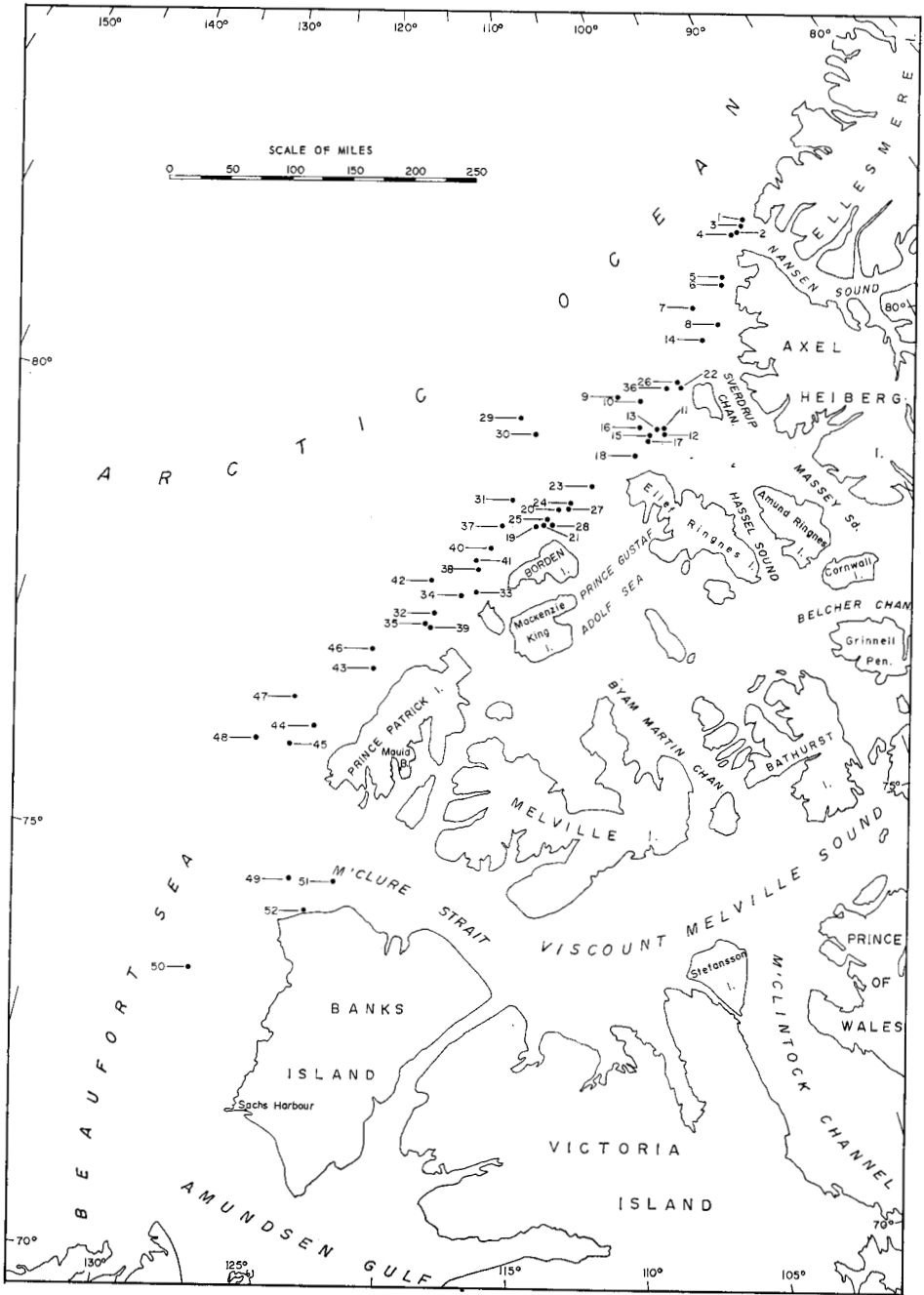


FIG. 1. Positions of the Ward Hunt ice islands WH-1, WH-2, WH-3, WH-4 (1963 to 1967). The key to the numbers is given in Table 1.

TABLE 1. Ward Hunt ice islands located during PCSP sea ice flights*

Reference Number	Flight No. and Year	Date and Month	Name of Ice Island	Location	
				Latitude	Longitude
1	1-63	24/6	"Joan" possibly WH-3	81°40'	92°45'
2	1-63	24/6	"June" possibly WH-4	81°34'	93°20'
3	2-63	4/7	"Joan" possibly WH-3	81°38'	92°55'
4	2-63	4/7	"June" possibly WH-4	81°34'	93°45'
5	3-63	19/7	"Joan" possibly WH-3	81°20'	95°34'
6	3-63	19/7	"June" possibly WH-4	81°12'	95°45'
7	4-63	30/8	"Joan" possibly WH-3	80°52'	98°12'
8	4-63	30/8	"June" possibly WH-4	80°43'	97°00'
9	5-63	10/9	"Joan" possibly WH-3	80°26'	104°40'
10	5-63	10/9	"June" possibly WH-4	80°17'	103°15'
11	1-64	24/6	Possibly WH-4	79°45'	102°15'
12	2-64	13/7	Possibly WH-3	79°43'	102°15'
13	2-64	13/7	Possibly WH-4	79°45'	102°45'
14	5-64	19/8	Possibly WH-2	80°35'	98°20'
15	6-64	5/9	Possibly WH-3	79°43'	103°10'
16	6-64	5/9	Definitely WH-4	79°48'	103°40'
17	8-64	27/9	Possibly WH-3	79°42'	103°15'
18	8-64	27/9	Possibly WH-4	79°30'	104°25'
19	2-65	7/7	Definitely WH-4	78°54'	111°05'
20	3-65	18/7	Definitely WH-3	79°06'	109°45'
21	3-65	18/7	Definitely WH-4	78°54'	110°45'
22	4-65	4/8	Definitely WH-2	80°12'	100°30'
23	4-65	4/8	Definitely WH-1	79°23'	107°20'
24	4-65	4/8	Definitely WH-3	79°10'	108°50'
25	4-65	4/8	Definitely WH-4	78°58'	110°25'
26	6-65	1/9	Possibly WH-2	80°13'	100°30'
27	6-65	1/9	Definitely WH-3	79°07'	108°58'
28	6-65	1/9	Definitely WH-4	78°56'	110°05'
29	7-65	20/9	Definitely WH-2	80°18'	101°18'
30	8-65	4/10	Definitely WH-3	78°55'	110°25'
31	8-65	4/10	Definitely WH-4	78°46'	112°15'
32	-66	19/5	Definitely WH-4	77°57'	117°20'
33	A-66	3/6	Definitely WH-1	78°25'	114°50'
34	A-66	3/6	Definitely WH-3	78°11'	115°55'
35	A-66	3/6	Definitely WH-4	77°49'	117°50'
36	1-66	19/6	Definitely WH-2	80°10'	101°20'
37	1-66	19/6	Definitely WH-1	78°57'	113°05'
38	1-66	19/6	Definitely WH-3	78°28'	114°38'
39	1-66	19/6	Definitely WH-4	77°49'	117°40'
40	4-66	29/7	Definitely WH-1	78°40'	113°50'
41	4-66	29/7	Definitely WH-3	78°36'	114°50'
42	6-66	3/9	Definitely WH-1	77°52'	117°30'
43	6-66	3/9	Definitely WH-3	77°20'	120°40'
44	6-66	3/9	Definitely WH-4	76°39'	123°40'
45	7-66	16/9	Definitely WH-4	76°25'	124°55'
46	7-66	25/9	Definitely WH-1	77°35'	120°55'
47	7-66	25/9	Definitely WH-3	76°59'	124°48'
48	7-66	25/9	Definitely WH-4	76°27'	126°25'
49	A-67	25/3	Definitely WH-1	74°48'	124°15'
50	A-67	25/3	Probably WH-3	73°45'	128°15'
51	-67	12/8	Definitely WH-1	74°55'	122°10'
52	-67	6/10	Definitely WH-1	74°30'	123°35'

* Locations between 24/6/63 and 10/9/63 were recorded by W. A. Black. Locations 24/6/64 to 25/3/67 were recorded by the author except for 19/5/66 when George Burry (a pilot for PCSP) landed on WH-1 and left 10 empty 45-gallon gas drums. Subsequent sightings (after 12/8/67) were made by W. J. Seifert.

June 1967, when this fragment was drifting near shore close to the end of the airstrip at Alert, two clusters of drums were put on it. The clusters were centrally located approximately 300 m. apart. Each cluster was made up of 20 empty 45-gallon drums securely banded and tied together, and erected in a pyramid similar to the clusters on WH-1. The clusters toppled as a result of the summer melt but each cluster remained a unit (like those on WH-1). Attempts to re-erect the two clusters on LT-1 failed because strong south winds (11 July 1967) caused the pack ice and the ice island fragment to move off shore, leaving approximately 10 miles of open water between the coast and the edge of the pack. Between 11 and 17 July, the fragment carrying the two clusters or radar markers moved 16 miles east and LT-1 was last sighted at 82°30'N, 60°30'W.

Although it is possible to estimate the rate and direction of ice island movement, it is important periodically to locate and identify particular islands. It was hoped that the drums set out by PCSP would assist the various sea ice reconnaissance groups to identify specific pieces of ice as they moved in the waters of the Arctic. Reports from the "Birds Eye" flights suggest that the specific patterns of drums are readily picked up by radar as well as the human eye, and that the drums will prove to be a very effective means of identifying ice islands.

D. Lindsay

W. Seifert

N. Anderson

POLAR CONTINENTAL SHELF
PROJECT, CANADA DEPARTMENT OF
ENERGY, MINES AND RESOURCES

¹Hattersley-Smith, G. 1963. The Ward Hunt Ice Shelf: Recent changes of the ice front. *Journal of Glaciology*, 4:415-24.

²Nutt, D. C. 1966. The drift of the ice island WH-5. *Arctic*, 19:244-62.

A Plant Collection from the Wrangell Mountains, Alaska

INTRODUCTION

During the summer of 1966, I participated in a reconnaissance in the easternmost Wrangell Mountains. This was part of a survey for a scientific program in a high mountain region, under the sponsorship of the Arctic Institute of North America (AINA).¹ After a brief survey of the Skolai

(formerly spelled Scolai, Scholai) Creek floodplain, we made a rapid traverse from Skolai Pass up to Chitistone Pass and down the Chitistone River to the mouth of Glacier Creek.² Vascular plants were collected by Barbara Murray and myself from the Skolai Creek floodplain (4,800 ft.), the steep slopes leading to Chitistone Pass, and from Chitistone Pass (5,800 ft.). We were able to return briefly to these same localities in 1967 for additional collecting.

Although there is a published account of a trip through Skolai Pass as early as 1891,³ and both Skolai and Chitistone passes received traffic headed for Chisana, Alaska, during a stampede for gold in 1913 and 1914,^{4,5} the flora has remained unknown. Richard Scott, a participant in the AINA High Mountain Environment Project, is now engaged in an intensive study of this flora. The following list of 115 taxa may be useful in providing distribution data until a more complete analysis is available.

Since the chain of mountains is continuous it might be expected that many of the species noted from the Wrangell Mountains would already be known from the St. Elias Mountains. Some of our collections from the Wrangell Mountains bridge "gaps" of occurrence for species with populations in both the mountains of central Alaska and southwestern Yukon Territory. Other species reported here are known from so few localities that their distribution in Alaska cannot be characterized. A southern extension of an arctic species, *Draba oblongata*, is also noted. The remainder are widely distributed species common to most alpine areas in Alaska and the Yukon.

Collection numbers follow the citation of species. Numbers 680 to 731 were collected on 30 June and 1 July 1966; numbers 970 to 1064 were collected on 21 and 22 July 1967. Vouchers for most of the species are deposited at National Herbarium, National Museum of Canada.

LIST OF SPECIES

Cystopteris fragilis (L.) Bernh. 978a.

Woodsia glabella R. Br. 978b

det. A. E. Porsild.

Equisetum scirpoides Michx. 701.

Equisetum variegatum Schleich. 697.

Lycopodium selago L. 694.

Festuca baffinensis Polunin 1026.

Previously known only from arctic location;⁶ a recent publication by Hultén⁷ includes other interior Alaskan localities.

Hierochloa alpina (Sw.) Roem. & Schult.

1002.

Phippia algida (Sol.) R. Br. 1046.