

**Veröffentlichungen des Instituts für
Internationales Recht an der Universität Kiel**

Band 105

Antarctic Challenge III

**Conflicting Interests, Cooperation
Environmental Protection, Economic Development**

**Proceedings of an Interdisciplinary Symposium
July 7th - 12th, 1987**

Organized by the Institut für Internationales Recht an der Universität Kiel
and the Alfred-Wegener-Institut für Polar- und Meeresforschung, Bremerhaven

Edited by

Rüdiger Wolfrum

Assistant Editor:

E. A. Michos-Ederer



Duncker & Humblot · Berlin

Antarctic Challenge III

**VERÖFFENTLICHUNGEN
DES INSTITUTS FÜR INTERNATIONALES RECHT
AN DER UNIVERSITÄT KIEL**

Herausgegeben von

Jost Delbrück · Wilhelm A. Kewenig · Rüdiger Wolfrum

Antarctic Challenge III

Conflicting Interests, Cooperation
Environmental Protection, Economic Development

Proceedings of an Interdisciplinary Symposium
July 7th - 12th, 1987

Organized by the Institut für Internationales Recht an der Universität Kiel
and the Alfred-Wegener-Institut für Polar- und Meeresforschung, Bremerhaven

Edited by

Rüdiger Wolfrum

Assistant Editor:

E. A. Michos-Ederer



Duncker & Humblot / Berlin

The organization of the symposium and the publication of this volume have been made possible by generous grants from:

Bundesministerium für Forschung und Technologie, Bonn
Dr. Otto Bagge-Gedächtnisstiftung

CIP-Titelaufnahme der Deutschen Bibliothek

Antarctic challenge: conflicting interests, cooperation, environmental protection, econom. development; proceedings of an interdisciplinary symposium / organized by the Inst. für Internat. Recht an d. Univ. Kiel and the Alfred-Wegener-Inst. für Polar- u. Meeresforschung, Bremerhaven. Ed. by Rüdiger Wolfrum. Assistant ed.: E. A. Michos-Ederer. — Berlin: Duncker u. Humblot.

Literaturangaben

NE: Wolfrum, Rüdiger [Hrsg.]

3. July 7th - 12th, 1987. - 1988

(Veröffentlichungen des Instituts für Internationales Recht an der Universität Kiel; 105)

ISBN 3-428-06550-6

NE: Institut für Internationales Recht <Kiel>: Veröffentlichungen des Instituts . . .

Alle Rechte, einschließlich das der Übersetzung, vorbehalten.
Ohne ausdrückliche Genehmigung des Verlages ist es nicht gestattet,
das Buch oder Teile daraus in irgendeiner Weise zu vervielfältigen.

© 1988 Duncker & Humblot GmbH, Berlin 41

Druck: Vollbehr u. Strobel, Kiel

Printed in Germany

ISBN 3-428-06550-6

Contents

Preface	13
Opening Ceremonies	15
Addresses by:	
<i>Jost Delbrück</i>	15
<i>Roger Asmussen</i>	17
<i>Rüdiger Wolfrum</i>	19
The Role of Scientific Advice for the Decision-Making Process in the Antarctic Treaty System	
<i>John A. Heap</i>	21
General Discussion	29
The Institutional Development of the Antarctic Treaty System: The Question of a Secretariat	
<i>R. Tucker Scully</i>	41
Comment	
<i>Alberto L. Davéréde</i>	53
General Discussion	58
Cooperation in Antarctica in Scientific and Logistic Matters: Status and Means of Improvement	
<i>Patrick Quilty</i>	65
International Agreements Applicable to Antarctica: A Survey	
<i>Scott A. Hajost</i>	79
Effect of Article VI of the Antarctic Treaty on Scientific Research	
<i>Patricia Birnie</i>	105
Panel Discussion	121
<i>Orlando R. Rebagliati</i> (121—125)	
<i>Wolfgang E. Burhenne</i> (125—127)	
<i>Reinhard Müller</i> (128—129)	
<i>Alfonso Muñoz Seca</i> (129—130)	
General Discussion	131

Air — Sea — Ice Interactions in the Antarctic Pack Ice Region <i>E. Augstein</i>	139
General Discussion	142
CCAMLR — Its Practical Side: The Polarstern Expedition <i>Dietrich Sahrhage</i>	143
General Discussion	147
Geology and Geophysics of the Weddell Sea <i>Dietrich Karl Fütterer</i>	149
Geophysical and Geological Research in Antarctica Related to the Assessment of Petroleum and Mineral Resources and Potential Environmental Hazards <i>John C. Behrendt</i>	165
Geophysical and Geological Data in Antarctica — The Overlap Between Science and Prospection <i>Franz Tessensohn</i>	170
General Discussion	184
Antarctic Resources and Remote Sensing by Satellite: The Inter- play of Technology, Mission and Law <i>Christopher Joyner</i>	191
General Discussion	226
The Legitimacy of the United Nations' Challenge to the Antarctic Treaty <i>Richard Woolcott</i>	229
Safeguarding the Interests of Mankind in the Use of Antarctica <i>Abdul Koroma</i>	243
The Question of Antarctica at the United Nations — The End of Consensus? <i>Cristian Maquieira</i>	253
The Issue of Antarctica — A Commentary <i>Mohamed Haron</i>	271
Panel Discussion	277
<i>Nils Bølset (277—278), Vladimir Golitsyn (278—286)</i> <i>Ian Hendry (286—288), H. P. Rajan (288—290)</i> <i>F. Orrego Vicuña (290—292), Jost Delbrück (292—295)</i>	

The Legitimacy of Concluding an Antarctic Mineral Resources Regime among the Antarctic Treaty Parties	
<i>Finn Sollie</i>	297
Comment: The Legitimacy of Negotiating an Antarctic Mineral Resources Convention among the Antarctic Treaty Parties	
<i>Song Li</i>	308
Lessons to be Learned from the Mineral Resources Negotiations	
<i>Arthur D. Watts</i>	319
Non-Consultative Parties: The Peruvian Approach to the Antarctic Treaty System and to Antarctic Mineral Resources	
<i>Nicolás Roncagliolo</i>	333
Panel Discussion	341
<i>Alberto Davéréde</i> (342—343), <i>Abdul Koroma</i> (343—344)	
<i>Vladimir Golitsyn</i> (344—346), <i>Jorge Berguño</i> (346—348)	
<i>Scott Hajost</i> (348—350), <i>Rüdiger Wolfrum</i> (350—351)	
General Discussion	352
Comment	
<i>Bo Johnson Theutenberg</i>	367
The Legal Status of Ice in International Law	
<i>Gerard J. Mangone</i>	371
Comment: The Legal Consequences of Antarctic Stations	
<i>Sudhir Chopra</i>	389
Air Traffic in Antarctica — The Need for a Legal Regime	
<i>Francisco Orrego Vicuña</i>	397
Comment: Air Traffic in Antarctica	
<i>Roberto Puceiro Ripoll</i>	424
General Discussion	432
Micro-organisms in the Antarctic Desert: A Model for Possible Life on Early Mars	
<i>E. Imre Friedmann</i>	445
General Discussion	451

The Legal Status of Visitors, Including Tourists, and Non-Governmental Expeditions in Antarctica	
<i>Boleslaw Adam Boczek</i>	455
Waste Management in Antarctica	
James N. Barnes, Peter J. Lipperman, Kelly Rigg	491
Comment: Waste Disposal: Need for Further Regulation?	
<i>Roberto Puceiro Ripoll</i>	530
Comment	
<i>Sudhir Chopra</i>	536
Panel Discussion	538
<i>Patricia Birnie</i> (538—540), <i>Rahmatullah Khan</i> (540—541)	
<i>Ian Nicholson</i> (541—543), <i>Nicolas Mettra</i> (544—545)	
<i>Roger Wilson</i> (545—547)	
General Discussion and Closing	548
Annex	563
Deep Sea Drilling in the Ice-Covered Arctic: Scientific, Environmental, Technical and Political Challenge, or The Call for C.O.N.D.	
<i>Jörn Thiede, Leonard Johnson, Yngve Kristoffersen, Steven Blasco, Lawrence Mayer</i>	563
List of Participants	583

Abbreviations

AFDI	Annuaire Français de Droit International
AJIL	American Journal of International Law
ANS	Astronomical Netherlands Satellite
APG	Antarctic Policy Group
ASEAN	Association of South East Asian Nations
ASOC	Antarctic and Southern Ocean Coalition
ATCM	Antarctic Treaty Consultative Meeting
ATCP	Antarctic Treaty Consultative Party
ATPs	Antarctic Treaty Parties
BAPS	Baseline Air Pollution Stations
BGR	Bundesanstalt für Geowissenschaften und Rohstoffe
BIOMASS	Biological Investigation of Marine Antarctic Systems and Stocks
BSR	Bottom Simulating Reflections
BYIL	British Yearbook of International Law
CCAMLR	Convention on the Conservation of Antarctic Marine Living Resources
CATSA	Cooperative Air Transport System Antarctica
CEOS	Committee on Earth Observation Satellites
CFR	Code of Federal Regulations (U. S.)
CHM	Common Heritage of Mankind
CMG	Commission for Marine Geology
C.O.N.D.	Centennial of Nansen's Drift
COPUOS	Committee on the Peaceful Uses of Outer Space (UN)
COSOD II	Conference on Scientific Ocean Drilling (Strasbourg 1987)
CZCS	Coastal Zone Colour Scanner
DDT	Dichloro-diphenyl-trichloro-ethane (C ₁₄ H ₉ Cl ₅)
DFA	Diesel Fuel Additive
DMSP	Defense Meteorological Satellite Program (U. S.)
DOD	Department of Defense (U. S.)
DSDP	Deep Sea Drilling Program
DVDP	Dry Valleys Drilling Project
EDF	Environmental Defense Fund
EEZ	Exclusive Economic Zone
EFZ	Exclusive Fisheries Zone
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency (U. S.)
ESMR	Electrically Scanning Microwave Radiometer
F. 2d	Federal Reporter (U. S.)
FAO	Food and Agriculture Organization
Fed. Reg.	Federal Register (U. S.)
FIR	Flight Information Regions
Friendly Relations Declaration	Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in Accordance with the Charter of the United Nations
FUND	International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage

GDR	German Democratic Republic
GEBCO	General Bathymetric Chart of the Oceans
GYIL	German Yearbook of International Law
HEW	Department of Health, Education and Welfare (U. S.)
IAGP	International Antarctic Glaciological Project
IBEA	International Biomedical Expedition to Antarctica
ICAO	International Civil Aviation Organization
ICL	Inter-Union Commission on the Lithosphere
ICSU	International Council of Scientific Unions
IGBP	International Geosphere Biosphere Programme
IGY	International Geophysical Year
IHO	International Hydrographic Office
IIED	International Institute for Environment and Development
ILC	International Law Commission
ILM	International Legal Materials
ILO	International Labour Organisation
IMCO	Intergovernmental Maritime Consultative Organization
IOC	Intergovernmental Oceanographic Commission
ITT	International Telegraph and Telephone
ITU	International Telecommunication Union
IUCN	International Union for the Conservation of Nature
IWC	International Whaling Commission
IUGG	International Union Commission of Geodesy and Geophysics
IUGS	International Union of Geological Sciences
JOIDES	Joint Oceanographic Institutions for Deep Earth Sampling
km	kilometers
kw	kilowatts
LDC	The Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter (London Dumping Convention)
LOSC	United Nations Convention on the Law of the Sea (1982)
m	meters
Ma	million years before present
MAF	Ministry of Agriculture and Fisheries (New Zealand)
MARPOL	The International Convention for the Prevention of Pollution from Ships
MARPOL 73/78	The Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships
MIT	The Massachusetts Institute of Technology
MNAP	Managers of National Antarctic Programs
MODIS	Moderate Resolution Imaging Spectroradiometer
MSR	Marine Scientific Research
MSS	Multi-Spectral Scanning
my	million years
NARE 85	Norwegian Antarctic Research Expedition (1985)
NASA	National Aeronautics and Space Administration (U. S.)
NCPs	Non-consultative Parties
NEPA	National Environmental Protection Act (U. S.)
NGO	Non-Governmental Organization
NOAA	National Oceanic and Atmospheric Administration (U. S.)
N-ROSS	Naval Research Oceanographic Satellite System (U. S.)
NSF	National Science Foundation (U. S.)
NSFA	Naval Support Force Antarctica (U. S.)
N. Z.	New Zealand
OCI	Ocean Color Imager
ODA	Ocean Dumping Act (U. S.)
ODP	International Ocean Drilling Program

para.	paragraph
PCB	polychlorinated biphenyl
RIAA	Reports of International Arbitral Awards
RTA	Return to Australia
RV	Research Vessel
RdC	Recueil des Cours (Académie de Droit International)
SAR	Synthetic Aperture Radar
SAR Convention	International Convention on Maritime Search and Rescue
SCAR	Scientific Committee on Antarctic Research
SCOPE	Scientific Committee on Problems of the Environment
SCOR	Scientific Committee for Oceanic Research
sect.	section
SMMR	Scanning Multichannel Microwave Radiometer
SOLAS	International Conference for the Safety of Life at Sea (London 1960)
sonar	sound navigation ranging
SPA	Specially Protected Area
SSM/I	Special Sensor Microwave Imager
SSSI	Sites of Special Scientific Interest
TIAS	Treaties and Other International Acts Series
UIR	Upper Information Region
U.K.	United Kingdom
U Miami L. R.	University of Miami Law Review
UN	United Nations Organization
UNCLOS	Third United Nations Conference on the Law of the Sea (1973—1982)
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNGA	United Nations General Assembly
UNJYB	United Nations Juridical Yearbook
UNTS	United Nations Treaty Series
U. S.	United States of America
USAP	United States Antarctic Program
USARP	United States Antarctic Research Program
USC	United States Code
USGS	United States Geological Survey
USSR	Union of Soviet Socialist Republics
WG	Working Group
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment
WQB	Winter Quarters Bay
WWSP	Winter Weddell Sea Project
WWW	World Weather Watch
Yale JIL	The Yale Journal of International Law

Preface

With interest in Antarctica and Antarctic resources continuing to grow apace, the Institute of International Law at the University of Kiel and the Alfred Wegener Institute for Polar and Marine Research in Bremerhaven organized a third interdisciplinary symposium on the scientific, environmental, legal and political challenges of the Southern Continent, which took place in Kiel from July 7th—12th 1987.

This volume, part of the publication series of the Institute of International Law at the Christian Albrecht University of Kiel, containing the presentations, comments, and discussions of the Symposium, is the third volume (together with volumes 88 and 95 of the Institute's publications) of the Antarctic Challenge series.

Over 70 scientists, diplomats, international lawyers and environmentalists from 24 nations met in their private capacity to discuss legal and administrative aspects of the Treaty System, both as it stands now and with a view toward necessary or likely changes; the nature of both pure and applied scientific research, together with its impact on living resources and the environment; and the question of the legitimacy of both the interest of the greater international community, represented by the UN, and that of the Consultative Parties to the Antarctic Treaty, in regulating the affairs of the continent.

During the time of this volume's publication, the Convention on the Regulation of Antarctic Mineral Resources is open to signature to the Antarctic Treaty Parties. This Convention, together with the ones already in force — namely, the Convention on the Protection of Antarctic Seals and the Convention of the Conservation of Antarctic Marine Living Resources — represent elements strengthening the Antarctic regime. This legal development, together with the perhaps incremental, yet nonetheless continual technological progress of humankind in the exploitation of the Earth's natural resources, as well as the environmental dangers thus posed, are evidence enough for the increased interest in Antarctica.

The Institute of International Law and the Institute of Polar Research are greatly indebted to the Federal Ministry of Research and Technology for funding this Symposium, as well as the publication of its proceedings. The publication of the proceedings have been further supported by the

Dr. Otto Bagge-Gedächtnisstiftung. Our sincere thanks also go to the Government of the Land of Schleswig-Holstein and the Rectorate of the Christian Albrecht University of Kiel for their involvement. My personal thanks to the staff of the Institute of International Law, whose efforts made the Symposium possible, with special gratitude to *Ingrid Jahn*, the research assistant responsible for the organization and functioning of the Symposium, and hence, its success.

Rüdiger Wolfrum

Welcoming Address

*Jost Delbrück**

Excellencies, *Herr Minister*, dear Colleagues, Ladies and Gentlemen:

On behalf of the Christian Albrecht University I have the great honour and pleasure to welcome you as participants of Antarctic Challenge III. Since 1983, this is the third time that a great number of eminent experts in the fields of Antarctic policies and research have assembled here in Kiel as guests of this University, and in particular of the Institute of International Law, as well as the Alfred Wegener Institute at Bremerhaven. We thank you for accepting our invitation so numerously. We consider this a vote of confidence in the conference facilities, environment and follow-up, as provided for in the past.

The Christian Albrecht University endeavours to strengthen its research programs in the marine and polar sciences, which have traditionally been, and still are, a stronghold of this University, situated as it is in a state between the Baltic and North Seas. Since our last meeting in 1985, our plans have become more concrete. We have received a full grant to establish a new Institute of Geomarine Research, which will be a welcome complementary institution to the established and highly recognized Institute of Marine Research. With the Institute of International Law being able to serve both, it is a fairly unique setting for our research activities in the future. I should like to wish for cooperation with its growing center of marine and geomarine and, particularly, Antarctic research in the years to come.

The programme of the present Conference is very rich. I congratulate *Rüdiger Wolfrum* that he has been able to persuade such a great number of eminent experts to contribute papers to the deliberations of the Symposium; I thank you all for your intellectual inputs into this effort. I also thank the Ministry of Research and Technology, as well as the State Government, for their material and spiritual support of the Symposium.

In one of the oldest marine research papers written here in Kiel in 1697 the author, a scientist named *Möbius*, mentioned that he could not

* Prof. Dr. *Jost Delbrück*, Rector of the Christian Albrecht University of Kiel, Director of the Institute of International Law at the Christian Albrecht University of Kiel.