

## Can Antarctica Be Preserved?

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January 8, 2008



Antarctica 2001, Photo by [Pathfinder Linden](#) at Flickr

With the November 2007 [sinking of the cruise ship \*Explorer\*](#) in the waters off Antarctica, the fate of this pristine continent has once again been pushed into the public eye. While it is generally acknowledged that mankind has an ethical responsibility to preserve this planet and, in doing so, to protect non-human life, there are differences of opinion as to the degree of such an ethical obligation. These differences become particularly pronounced when dealing with certain "ethical dilemmas," such as using animals for laboratory testing, overuse of fossil fuels, the killing of animals for sport or fashion, bioprospecting that upsets established eco-systems, to name only a few. What seems clear today—especially in light of the *Explorer* disaster—is that one of the greatest ethical dilemmas currently facing the nations of the world is how and to what extent mankind should regulate the vast region of Antarctica.

### Then and Now

Scientists theorize that approximately 300 million years ago our Earth had only one land mass—later named Pangaea (Greek for "all land"). Shortly thereafter this split into two land bodies. About 200 million years ago the more southern of the two, Gondwanaland, divided into what are now Africa, Australia, South America, the Indian sub-continent, and Antarctica. Prior to the division of Gondwanaland, and prior to the "icing" of the continent, Antarctica was much closer to the equator and was lush with tropical rain forests and populated with dinosaurs. Thus, it is assumed that many of the minerals found in the more northern "sister continents"—including coal, tin, uranium, and oil—will also be found in Antarctica.

Attention was first drawn to these potential resources during the [1957-58 International Geophysical Year](#) (IGY). At that time Antarctica was viewed as a cold, barren, and forbidding place. Today it has a growing number of scientific research bases, ice highways and runways, and—during the 2006-2007 Antarctic Summer—some 30,000 tourists. Despite this growth in research and tourism, Antarctica is unique in that it has no governing body, no electorate (or citizens), and no permanent human inhabitants. Since 1961 it has been regulated by the requirements of the [Antarctic Treaty](#), which gives control of the continent to the 27 states that hold territorial claims, or have established research expeditions, and/or were charter signatories of the treaty. In addition, 17 countries, known as Acceding Parties, have become signatories without a vote, and have agreed to uphold the terms and principles of the treaty. The original Antarctic Treaty has been expanded through additional protocols to create what is now the [Antarctic Treaty System](#) (ATS).

The ATS is unique in that it attempts to regulate a land mass with no population and no assertion of territorial sovereignty. Its major aims are to:

- Assure that Antarctica will be used only for peaceful purposes (Art. I, IX)
- Maintain freedom of scientific investigation (Art. II, IX)
- Share all information relating to research, whether completed or in the planning stage (Art. III)
- Prohibit nuclear explosions and disposal of radioactive waste (Art. V).

Another important section includes the agreement of seven claimant countries (with overlapping territorial claims) not to seek enforcement of their claims as long as the ATS is effective. However, the United States and Russia (then the USSR) have reserved the right to exert future territorial claims.

The ATS does include a protocol on environmental protection (known as the [Madrid Protocol](#), agreed to in 1991) designed to protect Antarctica from drilling and/or mining for the mineral resources scientists now believe to exist. The Madrid Protocol requires an environmental assessment of planned activities pursuant to the "scientific research" umbrella. It must be remembered that such an assessment is the responsibility of the state whose

nationals are undertaking the research or of the state on whose claimed territory such research is being carried out. This is just one instance where territorial claims, although not being pressed, are very much in the forefront. If such research is being undertaken by a state that is not an ATS signatory, then there is really no way for the ATS to exert jurisdiction in order to enforce the requirement of the environmental impact statement. Thus, the claimant state is left with the responsibility to initiate an assessment. However, this is impractical given that assertion of territorial rights would in itself be in violation of the ATS and might very well lead to the destruction of the treaty system.

One must also remember that "research" is a broad category, undefined and unlimited within the treaty, and only time will tell whether the protocol will be able to protect the environment. To further complicate matters, such interpretation and enforcement of the treaty is left to the signatories themselves. Each of the 44 signatories is responsible for policing its citizens; and there is no mechanism for enforcing the terms of the ATS against non-signatory states or their citizens. At present, for example, the Russians are planning to drill within Lake Vostok, one of the fresh water lakes found in the interior of the continent—ostensibly for scientific purposes, but it is easy to imagine that this is really a form of "bioprospecting" that could lead to future commercial enterprises.

Although there have been numerous objections, there is not, under the treaty, any authority that can deny Russia the right to drill and take samples as part of its research program. In addition, the United States has built and maintains a 2,000 mile ice highway from its base at McMurdo Sound to the South Pole; the Australians have enlarged their landing strip to accommodate larger, heavier aircraft; and the weather station established by Stanford University permits its ice runway to be used by the Patriot Hills Base Camp, a tent camp for adventure seeking tourists during the Antarctic Summer.

Tourism is not covered by the ATS and, if regulated at all, it is self-regulated by the [International Association of Antarctic Tour Operators](#) (IAATO)—a voluntary group. The organization prescribes strict rules for environmental protection and limits the number of passengers disembarking at any one landing site at a given time. There are also detailed rules designated to prevent changes in the native plant and animal life. These include a prohibition against removing any matter from the land and a requirement that the indigenous inhabitants, penguins, have the right of way.

Nevertheless, most scientists believe that it is difficult, if not impossible, to completely control the ingress and egress of foreign bodies and plant life. For example, since tourism has increased so dramatically, the penguin population has decreased. (Although it is known that penguins do not fear humans, the relationship between increased tourism and a declining penguin birth rate remains unclear.) Further, because the IAATO is a voluntary organization, a company does not have to be a member in order to operate in Antarctica, and enforcement of the rules means exclusion of the violating company from the organization, not from operating on the continent. This seems a small price to pay if a violation is in the financial interest of the tour operator or cruise ship.

One must applaud the cooperative nature of the ATS. This appears even more surprising when one recalls that the Antarctic Treaty was drafted and approved during a time of intense global stress. To date, the treaty has been reasonably successful in controlling activities on the continent, with one notable exception—the continued hunting and capturing of krill in Antarctic waters by Japanese and Chilean fisherman. Since krill are a major part of the food chain for penguins, this may have a grave effect on the future of these birds.

On the plus side, despite the discovery of coal on the continent and the knowledge that other valuable minerals exist as well, there has been no attempt to drill for them to date. Also, the fact that Antarctica has become one of the "in" places to visit has not yet turned it into a resort area. Still, we must keep in mind that at the time the treaty was originally signed the world's oil supply was deemed to be endless, environmental issues were minimal, and the Cold War superpowers were too occupied with military technology and strategy to focus on the ice-laden continent. Similarly, tourism in general was limited to a select group of affluent travelers, and Antarctica was a place of little practical or tourist interest. The world, however, has changed drastically over the past four-plus decades, and much of what seemed unlikely or impossible in 1961 is commonplace today.

### Some Specific Issues

Because of the growing interest in the continent, it is necessary to look closely at the ATS in order to ascertain exactly how much protection it will provide now and in the future. As mentioned, the ATS is a voluntary agreement, and as such there is no entity with the power to enforce compliance. The situation is further complicated by the ambivalent feeling of some of the signatories. For example, in [Smith v. United States \(1993\)](#), the U.S. Supreme Court held that the United States had no jurisdiction in a wrongful death action brought against the government by a U.S. national for the death of a U.S. worker in Antarctica. In the majority opinion of Chief Justice [Rehnquist](#), the U.S. had no jurisdiction because the death took place in "another country." The existence or terms of the ATS were not even acknowledged in his opinion.

In addition, concern about the possibility of an entity seeking mineral resources in Antarctica has become more pressing as existing resources either continue to diminish or become less accessible due to changing political circumstance. The growth of new technology will likely provide less expensive, more efficient ways of locating and

extracting these resources. Since the parties that now claim territorial rights have not abandoned those claims but have merely put them on hold, these same parties might choose to reassert their claims should the extraction of valuable minerals become more feasible.

Consider, for example, the following hypothetical scenario as to what might happen should a non-signatory country (or citizen thereof) opt to drill for minerals in Antarctica on land claimed by the United Kingdom. Once it was recognized that such drilling was about to begin, the signatories would become alarmed about this clear violation of the Madrid Protocol and would, most likely, attempt to convince the violator that this would be 1) a blatant violation of the ATS, and 2) a step toward the destruction of Antarctica as we know it. If the violator remained unconvinced, or unconcerned, there would not be much more that the parties to the ATS could do as a body. However, if the violator was, as was suggested, pursuing the project on land claimed by the United Kingdom, and the United Kingdom believed that such drilling would have an excellent chance of success, it seems unlikely that it would just sit back and watch its territory invaded and damaged for someone else's gain. As reported in the *Christian Science Monitor* (August 3, 2006), Australian Conservative MP Barnaby Jones declared upon returning from Antarctica:

"What you have to ask is, do I turn my head and allow another country to exploit my resources, or do I position myself in such a way that I'm going to exploit it myself before they get here?"

(It should be noted that Australia is claiming 42 percent of Antarctica.)

Under such circumstances, an obvious next step might be to declare the drilling to have caused the ATS to be deemed no longer effective, thus enabling the U.K. to pursue its own territorial claim. As other signatories followed suit, one can easily image the chaos that would ensue.

It seems fair to say, then, that there are real problems ahead for the continued reliance upon the ATS as the primary means for protecting Antarctica. The treaty worked well when its main purpose was to keep military bases and nuclear testing off the continent. But when the protections against commercial inroads begin to weaken—whether as a result of biological discoveries, tourism, or the desire for minerals—something stronger and more enforceable is required.

### **What Happens Next?**

Antarctica is a major link to our planet's geophysical history. It is one of the last unspoiled places—ruled by nature, not by man. If it is to be preserved, we must assure that the continent remains a laboratory for all—unmarred by environmental, ecological, or political issues. We must understand the future threats to the current system of self-regulation and devise a better way to combat those threats.

I have visited the continent on four occasions and, unfortunately, each successive visit revealed subtle but real changes. There is now a souvenir shop on the former British base at Port Lockroy; the Argentinean base (once a small three person "shack") now serves tea and cookies to visitors; and the American base at Palmer Station has become closed to visitors and no longer allows its scientists to visit the cruise ships because the demand has become too great. There is even talk of building a hotel for tourists, which would inevitably include building additional landing facilities so that tourists could arrive by air rather than, as they do now, by ship. I am not suggesting that tourism be eliminated but, rather, hope that it can be controlled in a manner that will ensure that tourists are regulated visitors rather than demanding consumers. The sinking of the *Explorer* is a clear example of the hazards that increased tourism can bring. We cannot yet assess the effect that even this one calamity will have on the eco-system of Antarctic waters.

Looking forward, one possible avenue for preventing further deterioration of the continent might be to have an organization such as the United Nations assume the enforcement part of the equation. The ATS could remain as a free standing, independent, multilateral treaty. But instead of violations being an issue among the signatories and their nationals, the United Nations could provide the added dimension of enforceability and credibility. This arrangement could be structured such that the UN did not have primary control of the governance of Antarctica. The ATS members would continue to monitor compliance, but treatment of violators would be handled by the UN. Enforcement could take the form of embargoes or even confiscation of machinery and tools used for the activities deemed to be in violation of the ATS. [The United Nations Convention on the Law of the Sea](#) (UNCLOS) is frequently brought up as an example of an international treaty that "works," but it must be remembered that UNCLOS does have the enforcement power of the United Nations behind it.

Tourism issues could also be better policed, and compliance with the IAATO guidelines needs stronger enforcement as well. Although IAATO has done a reasonable job of designing a system of self-regulation, some structure needs to be put in place that would require all vessels (tourist or otherwise) entering Antarctic waters to comply with predetermined guidelines. This would hold true whether or not the vessel operators were members of IAATO or nationals of signatory parties. The United Nations, which already includes the [International Maritime Organization](#), might be the best body for enforcement of such a law as well.

In short, involving an international organization in the governance of Antarctica, although perhaps less than ideal, seems a more realistic way of keeping the ATS in place and effective than would permitting it to continue with no enforcement capability. In 2005 the United Nations reviewed the situation in Antarctica as it has been doing, at the request of Malaysia, every three years. At that time it concluded that the ATS was in place and that there was nothing more for the United Nations to do. I believe that this was a grave mistake and one that should be reversed. Perhaps now is the time to begin to organize to such an end. Hopefully our grandchildren shall know an Antarctica that differs very slightly from the one of today—or of 50 million years ago.

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