

THE ARCTIC: A GEOGRAPHER'S PERSPECTIVE

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The Arctic is one of what we now call 'the three poles': Arctic, Antarctic and Himalayas given their importance to the future of life on our planet. Standing on the North Pole of the floor map we have been loaned from XXXX gives a totally different perspective to our UK centric view. We recognise the Arctic as the place at the top of the map, but maybe like the other two poles, it should be at the centre given its global importance.

I have been in the Arctic many times: on an expedition to Vest Spitsbergen led by the late Chalmers Clapperton in 1972, cruises as a lecturer and guide to Iceland, Greenland and Svalbard, and visits to Arctic regions of Norway and Finland, and many visits to Iceland. The overwhelming impressions are the scale of the land and sea, which literally distorts one's visual perspective, the sheer beauty of the landscapes: nature in all of its majesty, and so many textbook examples of features and forms being created in front of one's eyes from glacial, glaciifluvial and periglacial processes.

What is the importance of the Arctic and what are the issues all nations face in their approach to the Arctic?

Scientific laboratory for climate change

Freshwater inflows into the ocean circulation system from melting of sea ice and the Greenland ice cap is just one of the many fundamental scientific studies undertaken in the Arctic that have increased our understanding of global ocean circulation. The importance of these flows to the continuation of the system is well known, but cannot be guaranteed in the future hence continuing to improve our scientific understanding is vital. Satellite monitoring of the pack ice has enabled the link between ocean and atmosphere changes to be monitored and provided an indicator of thermal warming of the oceans. The effects of the global temperature increase on the permafrost areas has increased concerns about the release of one of the more potent Greenhouse Gases – methane, and the effect on human wellbeing of the Inuit and other Arctic dwellers. Long standing measurements at the international research base at Ny Alesund Vest Spitzbergen have shown the increasing upwards trend of CO₂ concentrations in the atmosphere. Maintaining the variety, quality and international collaboration of these scientific studies is vital. It is the preferred way to ensure that before decisions are taken participants have the most accurate, validated and up to date knowledge available.

Places for exploration

The Arctic Ocean and the Arctic island chains have become 'must go places' for adventurous tourists keen to add to their bragging of places visited. Yes, these journeys add to people's enjoyment of remote places, but whether they really improve the sum of public knowledge and appreciation of these areas is a moot point. The landscapes are definitely awe inspiring in the best sense of the term and the landforms in their pristine state give the public insight into our world of cold climates both glacial and periglacial. But the degree of intrusion can result in damage to prime nature areas and disturb the delicate balance in the way of life of the indigenous people. Better management is needed and a more ethical approach by tour companies and their industry bodies, alongside enforcement of the stricter codes on vessel types and their fuel sources.

We have benefitted from 19th and early 20th Scottish explorers and the narratives they have brought, including the unsung Orcadian explorer James Rae. Bringing this to the attention of the public is an important task.

Resources for exploitation

The Arctic has long been an area for exploring and exploiting natural resources. Coal mining in Vest Spitzbergen being a case in point, and the more recent oil and gas extraction from the Barents Sea

area by Norwegians and Russians, and by the Canadians and the Americans on the north slope of Alaska. There is continuing and reasonable disquiet about any resource extraction from these areas given the risks of pollution, so evident from previous accidents, such as Exxon Valdez in the Alaska, soil and water pollution at the mining settlements, and intrusion into pristine environments and the effects on indigenous communities.

Land claims by Arctic nation states are a worrying trend. This is especially so seen from the perspective of indigenous communities who see themselves, quite rightly, as part of nature and deeply dependent on it for their survival and wellbeing.

With the migration of fish stocks northwards, arising from ocean warming, there is even more challenge to maintain a biologically sound balance between biomass creation and fisheries catching. No take zones along with strict controls on gear and catch size and adequate enforcement are essential, alongside scientifically informed biomass conservation.

A cultural crossroads

We tend to think in a European context of the Arctic being a place for colonisation from the Nordic world, but archaeological investigations have forced us literally to widen our horizons and recognise the interplay of Nordic, Scandic and Celtic interchange through sea travel over many centuries. Reading the Icelandic Sagas, for example, gives a clear impression of the cultural interchange between the lands of the north Atlantic. In addition, there has been migration from the Pacific of the Inuit and other cultures into North America and Greenland. Now the interchange is even greater with the interest shown in opening up Arctic sea routes between the Pacific and Atlantic Oceans for commerce and tourism and the growth in the non-indigenous population of the Arctic lands.

Models of international cooperation

Only a few countries can legitimately claim to be in the Arctic: Canada, Finland, Denmark through Greenland, Iceland through Grímsey, Norway, Russia, Sweden and the USA. But many more stake a claim because of its strategic importance in navigation, trade and geopolitics. This is evidenced, for example, by 10 countries having permanent research bases at Ny Alesund, Svalbard; the archipelago itself being governed by a multilateral treaty signed by 46 countries. The Arctic Council is the formal mechanism and significantly still works by consensus. It has a strong research focus commissioned by the Council members, and the results are used to make evidence based decisions: a vital attribute in our modern world where knowledge is all too often derided

More recently the informal Arctic Circle was established. At the Arctic Circle conference in Edinburgh 2017, former President of Iceland, Ólafur Ragnar Grímsson, made it clear that Scotland had a legitimate part to play in the future of the Arctic and the First Minister for Scotland clearly accepted the invitation with the by-line *Scotland and the new North*.

How will these various organizations be able to cope with the challenges now and in the future? Let us hope that their flexible approach and inclusive operation will provide a sound basis for meeting the challenges of the future. Geopolitics will play an important role in determining the future pattern of resource use and trading patterns. But it is essential that geoscience and related disciplines continue to play a formative role in providing the evidence for decision making within the formal and informal machinery established.

What do younger generations think about the importance of the Arctic and its role in the future of our planet? We will be exploring these perspectives in the next edition of *The Young Geographer* focussing on the Arctic.