



View Forecast



Welcome to the site! Login or Signup below.

Login | Signup

Three poles: The Arctic, Antarctic and Himalayas all connect

Story Comments (38)

Print Font Size: - +

Posted: Sunday, June 2, 2013 12:00 am

Falk Huettmann and Ashok K. Roy | 38 comments

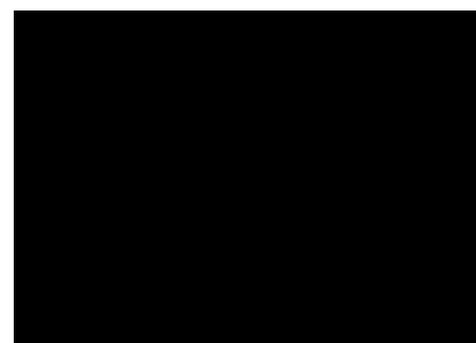
The Arctic, the Antarctic and the Hindu Kush-Himalayas-Tibetan Plateau form a vortex of remote terrains consisting of rock, snow, glaciers, low temperatures and ice. The icy deserts and vast wilderness of this trio of poles are similar in that they have a profound impact on the earth's climate as they act as cooling chambers; are home to several unique species such as the Arctic polar bear, the Himalayan snow leopard, and the Antarctic emperor penguin; face similar ecological challenges; shelter the planet's primary water and ice resources impacting oceans, coastlines, and water-tables; and are fragile, specialized ecosystems.

While the Arctic is an ocean basin surrounded by continents, the Antarctic is a continent surrounded by ocean, and the Himalayas comprise the highest and youngest mountain belt.

Above 15,000 feet altitude, the conditions in the subnival Himalayas resemble the Arctic and Antarctic polar regions. Microbial biomass levels in the dry areas of the Himalayas are as low as those of the dry valleys of the Antarctic, and they both contain the same one of the dominant algal clades. Although at first glance the regions differ, the time has come to view the three poles holistically, as they also demonstrate remarkable similarities of microbial life in their arid soils.

Oil and gas explorations across Alaska, Russia, Greenland and Norway involve similar

Advertisement



challenges, business concepts and often the same companies — Royal Dutch Shell, BP, Exxon Mobil and Schlumberger. The geopolitical relevance of the Arctic is overwhelmingly economic in nature, with about 22 percent of the Earth's remaining supplies of oil and gas. The Antarctic is a valuable region for research, and the Himalayas regions have significant political and military relevance. Moreover, the workforce skill sets required in cold, remote and field science environments are similar for all three poles. For example, many workers move between work at Toolik Lake in the Arctic and the Antarctic depending on the season; scientists working in the Svalbard archipelago in the Arctic are regularly hired in New Zealand or Australia to work in the Antarctic. Another example of the interconnectedness of the poles is the impact of the Asian brown cloud on Alaska's air quality.

Additionally, the three poles are connected and important for many long-route migratory birds: The Arctic tern flies 12,000 miles from its Arctic breeding grounds to the Antarctic and back again each year; raptor migration takes place between the paleo-Arctic and the Himalayas.

Commercial shipping and resource extraction also bind the Arctic and the Antarctic. In both of these poles, advances in fishing technology have facilitated the exploitation of fishing in deeper waters than before with such species as the Antarctic toothfish, Antarctic cod, salmon and whitefish. Interestingly, the Antarctic Treaty prohibits, at present, terrestrial extraction in the Antarctic. However, in the years ahead, much discussion is expected regarding the use and "mining" of Antarctica's terrestrial resources. Due to the economic rise of China and India — which share the third pole — there is increasing trade with the Arctic and interest in the sea routes in the Arctic. One spinoff is the increase in cargo routes and air traffic through Anchorage connecting the United States with Asia. From a wider perspective, new pipelines and liquefied natural gas projects in Asia connect to markets and resources in the poles. The trans-Siberian railway connects, for example, eastern Siberia to China and Mongolia. As crude oil markets are international, Kazakhstan, with its huge oil reserves, is developing pipelines to meet demands in China. Because of the high mountain area where Nepal (with no petroleum resources) is located, it must import oil from India. It is worth noting that the Tibetan Plateau alone at the third pole contains 36,800 glaciers and has the largest mass of cryospheric components outside the Arctic and the Antarctic.

Additionally, another common thread that runs through the three poles is eco-tourism, as a result of their biodiversity of flora and fauna and vast geographic mass of snow-capped mountains and glaciers. The third pole, with its glacial melt, supports 10 major river basins, including the Ganges, Indus, Brahmaputra, Mekong, Yangtse and Yellow rivers. Only the North Pole region can impress equally with its polar bears, huge auk colonies, bowhead whales known to live more than 180 years, caribou conducting one of the largest animal migrations on Earth and the world's biggest national park in northeast Greenland.

Besides economic and cultural threads, complex geopolitical threads also intertwine the three poles. Some of the world's conflict pressure points reside in the third pole (Tibet, the Maoist insurgency in Nepal, and political/military power equilibrium kept in balance by nations like India, China, Russia and the U.S.).



Madden Real Estate

Customer testimonials for Madden Real Estate in Fairbanks, Alaska

Local display advertising by PaperG

Homes And Real Estate

FOR SALE

1259 Sutton Loop
Fairbanks
\$209,900
5 Bed, 2.5 Bath

homes.newsminer.com

2013 Yukon Flood

For complete coverage of the 2013 Yukon River floods visit
www.newsminer.com/news/yukon_flood

Photo by Ed Flueck/PHS

One more commonality among the three poles is that many glaciers are now in retreat as a result of global warming, with profound and lasting impacts on the hydrological regimes of the river basins as well as reduced flows. All three poles face significant threats from climate change. A study published by MIT researchers in the American Meteorological Society's Journal of Climate in 2009 forecast a 90 percent probability that global temperatures will rise between 6.3 and 13.3 degrees Fahrenheit in this century, with even greater increases at the poles. This will almost certainly trigger rising sea levels, extreme weather patterns, water shortages and even conflicts. Already, drinking water is exported from Nepal (at the third pole) to South Korea. Over-populated (India, China) and often volatile nations (Bangladesh, Afghanistan, Myanmar) also rely on freshwater supply from the third pole. Recent studies have confirmed that climate change is happening in the cryosphere (the Arctic, Himalayas, and Antarctic) faster and with more visible impact than anywhere else on Earth. At the three poles, permafrost, ice and glaciers are melting, releasing greenhouse gases and making it increasingly difficult for many species to adapt for survival, such as walrus, Arctic fox, emperor penguin and snow leopard, to name a few.

Apart from the commonality of natural resource exploitation among the three poles, is the common struggle with urbanization (Lhasa and Kathmandu in the third pole already have millions of inhabitants each). In contrast to the Arctic and Antarctic polar regions, the Himalayas have significant human population as well as several microclimatic zones within the different altitudinal ranges.

The cultural dimensions, including hundreds of minorities, such as the Lachenpas, with their languages and dialects and three of world's largest religions — Hinduism, Buddhism, Zen — of the third pole are more profound than that of the circumpolar north. However, new roads and hubs for ships and planes are being built and developed in Iceland and Kamchatka; and Antarctica now has regular flight services and airports, with the discussion continuing to include the building of hotels. According to the United Nations Environment Programme/Global Resource Information Database-Arendal outlook, economic growth and industrial development are forecasted for the North Pole in the next 50 years and even include the sea floor.

The challenges (biomass heating and cooking, agricultural burning) and similarities (cross-fertilization of technologies to decrease carbon emission from stoves used for heating in the Arctic and cooking in the Himalayas) between the Arctic and the Himalayas are strikingly similar despite their geographic differences.

Thus far, the sweeping scale and scope of commonalities among the three poles have not been addressed in Alaska or, for that matter, more globally. We are at a crossroads on the path to a more holistic understanding of our common challenges and potential. It is our fervent hope that this article will help launch that conversation at a public policy level, on a more immediate basis, yielding new insights into the cold, dry limits to life on earth. William Blake wrote that a tree moves some men to tears, but for others is merely "a green thing that stands in the way." Similarly, for many there are two poles; but for some there are three poles which are so lovely, so inviting, and have so much in common in terms of their extreme physical ecosystems. The time has come to move this discussion on the spatial, temporal and biological connections among the three poles from poetry to prose.

Falk Huettmann, Ph.D., is a wildlife ecologist and associate professor at the Institute of Arctic Biology in the Department of Biology and Wildlife at UAF and the editor of "Protection of the Three Poles," published by Springer, Japan. Ashok K. Roy, Ph.D., is vice president for finance and administration and chief financial officer for the University of Alaska system, as well as associate professor of business administration at UA Fairbanks. The views expressed here are the authors' own and not those of the University of Alaska. This article appeared first in the Alaska Business Monthly's June edition.

Submit Your News & Photos!



We're always interested in what you're seeing and hearing around the community. Send us your news tips and best photos.

[Submit here](#)



Calendar

June 2013						
Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

today's events browse submit



Marketplace



Madden Real Estate
Fairbanks, AK
907-452-3000



Find Local Businesses

Search

[Popular Searches](#) | [Browse By Category](#)

