

2. **Arctic Keynote**
Michael Robinson

The Rise of “Arctic Fever” in America

In the 19th century, dozens of American expeditions sailed north to the Arctic to find a sea route to Asia and, ultimately, to stand at the North Pole. Few of these missions were successful, and many men lost their lives en route. Yet failure did little to dampen the enthusiasm of new explorers or the crowds at home that cheered them on. The Arctic became a landscape for artists, the staging ground for new technologies, and a field for geopolitical competition. In surveying the unknown regions of the North, explorers revealed much about themselves and the ever-changing world they left behind.

3. Chet Van Duzer

**Inventing Terra Firma around the South Pole:
The Southern Ring Continent, 1515-1554**

In the early modern period it was believed that there had to be a substantial landmass in the south to counterbalance the continents in the north. This landmass was depicted on maps beginning in about 1508 on a world map by Francesco Rosselli, where it is essentially a very large island at the South Pole. Some globes and maps from the sixteenth century illustrate a remarkable variant of this geographical myth: a continent-sized landmass that forms a ring around the South Pole. These globes and maps include two globes by Johann Schöner (1515 and 1520), the anonymous Green Globe (ca. 1515), an anonymous world map in the *Biblioteca Apostolica Vaticana* (ca. 1530), and a world map by Michele Tramezzino (1554). In this talk I will discuss the sources of this unusual view of the Southern Polar Regions in classical, medieval, and Renaissance hydrographical theories and geographical texts.

Lunch 11:45-1:00

1:15- 3:30 PM Mapping the Antipodes

1. Claire Porter

The View from Above: How High Resolution Satellite Imagery has Revolutionized Polar Mapping

Satellite-borne remote sensing platforms are fundamentally altering the way we conduct polar science and mapping. No longer limited by costly field campaigns, satellite imagery allows us to see Polar Regions with an unprecedented spatial and temporal resolution. The breadth of optical sensors, from MODIS to Landsat-like sensors to high-resolution commercial sensors like QuickBird, WorldView, and GeoEye, provides a wide range of tools to address mapping questions and many scales.

In particular, the recent influx of high resolution optical imagery to US federally funded researchers makes it possible to see surface features measuring only a few meters. Polar researchers have leveraged these data to provide continent-wide 50 cm resolution imagery mosaics, high resolution

elevation models in poorly mapped areas, quantification of glacier volume and speed, and custom products to facilitate geological mapping and species distribution assessments.

2. Cole Kelleher

Geospatial Enabled Science, Logistics, and Exploration in the Polar Regions

While exploration and mapping in the Arctic and Antarctic dates back over a century, it has only been in the past few decades that enormous developments in these two areas have been made. These developments are in large part due to the advances in geospatial and remote sensing technologies which allow us to capture, derive, and distribute the most detailed and accurate data sets of the Polar Regions the world has ever seen. The amount of geospatial data being collected presents new exploration challenges as it is being collected on such a massive scale it surpasses the human capability to manually monitor it all. However, much of this data is not only providing new capabilities for science and logistics personnel but giving new life to historic data sets as well. In this presentation I will discuss new spatial technologies that are now being employed to map and explore the Polar Regions both in the field and remotely, as well as the implications on scientific and logistical initiatives.

3. Beata Csatho

Remote Sensing Reveals a Melting Arctic

Rapid warming has caused a dramatic decrease of ice in the Arctic region during last few decades. Sea ice extent rapidly declined; glaciers sped up, thinned and retreated, and permafrost warmed up and thinned. Arctic warming is further amplified as surface temperature has increased due to the melt of the protective snow and ice cover. Moreover, the accelerating melting of Arctic glaciers and the Greenland Ice Sheet provides a major contribution to sea-level rise that is expected to continue through this century and beyond. Changes in the ice cover, global sea level and permafrost have significant socio-economic impacts in the US and around the globe. Therefore, it is imperative to monitor ongoing changes and to develop better models for predicting the future. Introduced in the late 1970s, satellite, and airborne remote sensing has offered an ever increasing variety of techniques for measuring changes of the Earth's surface with unprecedented spatial and temporal details and accuracy. This talk will start with a review of changes in the Arctic during the last decades as depicted by remote sensing measurements. The second part of the talk will focus on the Greenland Ice Sheet. This massive ice sheet is currently losing ice on a scale not seen since the end of the last ice age. I will review the recent history of Greenland Ice Sheet, as derived from a variety of remote sensing mission that measured surface elevation, ice velocity, gravity, surface melt and other parameters. These results reveal an intricate pattern of ice loss due to surface melt and increasing ice velocity, strongly enforcing the need for continued remote sensing monitoring at high spatial resolution.

3:30-5:00 Reception

Friday May 15th

9:30 -10:15 Governing the Antipodes

Oran Young

Governing the Antipodes: International Cooperation in the Arctic and Antarctica

The Arctic and the Antarctic appear to be polar opposites with regard to many matters, including the systems of governance that have evolved in the two regions. Antarctica is demilitarized, closed to economic development, open to a wide range of scientific activities, and subject to strict environmental regulations under the terms of the legally-binding Antarctic Treaty of 1959 along with several supplementary measures that together form the Antarctic Treaty System (ATS). The Arctic, by contrast, is a theater of military operations, a site of large-scale industrial activities, a homeland for sizable groups of indigenous peoples, and a focus of growing concern regarding the environmental impacts of human activities. The Arctic Council, the principal international body concerned with governance at the regional level, operates under the terms of a ministerial declaration that is not legally binding; it lacks the authority to make formal decisions about matters of current interest. Digging a little deeper, however, turns up some illuminating similarities between the two governance systems that will be of interest not only to those concerned with the polar regions themselves but also to those seeking to meet emerging challenges of governance in other settings. In this essay, I pursue this line of thinking with a set of observations relating to (i) the history of governance in the antipodes, (ii) institutional innovations occurring in these regions, (iii) issues of membership, (iv) jurisdictional concerns, (v) the role of science, (vi) relations with the UN system, (vii) institutional interplay, and (viii) the adaptiveness of governance systems in the face of changing circumstances.

10:30-11:15 Collecting the Antipodes

Arthur Dunkelman

The Ends of the Earth

Working with Jay Kislak and the foundation acquisitions committee is always a stimulating experience. Often, we come to whatever subject is at hand with different sensibilities and different objectives. As curator, I strive for completeness and connections, tying the subject to the larger world and history. Jay Kislak strives to acquire the significant, the unique, the definitive and, perhaps, the heretofore unobtainable. He is fascinated by manuscripts ... by definition unique; they offer the rare opportunity to travel in time to their moment of creation. His oft-repeated question when presented with an acquisition opportunity: Why is this important?

Through this dialogue, a collaboration of sensibilities emerges and the collection grows. It includes objects of profound importance – such as the 1493 Columbus letter announcing his westward route to the Indies – and also items of little value produced for popular consumption.

Terra Incognita, as the Polar Regions were called, did not have much to offer early cartographers. For centuries cartographers filled the polar areas with images depicting myths and monsters. Occasionally a great artist such as Coronelli was able to create magnificent works, like the globe calottes [1697].

Historically though, maps of the extreme north and south were essentially featureless. Little accurate information about the Arctic regions was known until the 19th century searches for Northeast and Northwest passages to Asia. Today, the Arctic remains a barren, featureless, moving plane. The vastness of the Antarctic continent was not charted until the middle of the 20th century when aerial observation made mapping possible.

The history of polar exploration is one element of the ongoing process of globalization. What was once seen as the great barrier to reaching the wealth of the Indies is now coveted for the valuable mineral resources beneath the ever-dwindling ice pack.

The story begins – as always in western thought – with the Greeks. They knew very well that the world is round: it has a top and a bottom, regions suitable for life, regions not suitable, and Terra Incognita – the unknown land: Ptolemy, Mercator, Ortelius, Finé and others could not fill the void.

Slowly, beginning with the English explorations in the 17th century, a picture of the great northern reaches began to emerge. By the middle of the 19th century – after 250 years of lost lives and wasted treasure – it became increasingly evident there might not be a passage.

The Antarctic held little fascination. The great navigator, James Cook, ventured into the frigid waters on two voyages. Driven back by the walls of ice, he never saw the mainland. He did, however, take pains to map his route accurately; it is published in the narrative of his second voyage. It took another 125 years for explorers to set foot on Antarctica and more years before Shackleton, Scott and Amundsen vied reach the South Pole: You will see Shackleton's man-haul harness and hear him tell the story of his failed attempt recorded on a wax cylinder and a grief stricken note written hurriedly and "without sleep" from Kathleen Scott to Sir George Egerton enclosed with a letter the dying Scott left with his diaries; and a map showing the route of Amundsen's successful "dash to the pole."

11:15-12:00 Questions for all Speakers Roundtable

1:00-3:30 Open House Geography and Map Division