

ARCTIC INSIGHTS

Deloitte's Arctic Insights solution—built on Google Cloud—is a geospatial artificial intelligence (AI) and machine learning (ML) tool designed to leverage climate modeling forecasts of sea ice melt in the Arctic and the projected impact it may have on the availability of natural resources and navigable shipping lanes in the region over the next 20 years. It is a flexible scenario planning tool that can be used to help answer specific questions about the future of the Arctic for decision-makers from national security agencies to commercial enterprises with a vested interest in the region.

SOME CURRENT BUSINESS CHALLENGES

The Arctic's strategic location, vast natural resources, and evolving geopolitical landscape due to climate change make it a region of significant importance for public sector organizations and private enterprises alike.

Forecasting future of the Arctic across various scenarios

Existing models for predicting sea ice extent in the future have a large variance from worst to best case scenario, making planning difficult due to the uncertainty.

Understanding and geolocating natural resources against territorial claims

The Arctic is rich in natural resources, such as oil and natural gas, which become accessible as sea ice melts. It is vital to both national security and commercial interests to understand where those resources are located across the arctic.

Navigating the Arctic for military and commercial vessels

As sea ice extent decreases, new sea lanes become navigable, opening new pathways for commercial shipping via shorter routes to much of the globe; and introducing potential conflict zones and routes for military vessels in the region.

SOLUTION OVERVIEW

Deloitte's Arctic Insights solution, built on Google Cloud, provides a broad view of the Arctic's future with the ability to conduct what if scenario planning, helping decision-makers prepare today.

Conduct scenario planning

Conduct what-if scenario planning up to 20 years in the future given projected sea ice extent across 5 different climate models ranging from best to worst case scenario.

Integrate data

Integrate data from various sources including natural resources, military or commercial infrastructure, satellite imagery, and more, to better inform decision-making and support prioritization efforts

Visualize geospatial information

Visualize 20 years of change in sea ice extent and predict future change in sea ice extent month to month over the coming decades. Explore other geospatial information by interacting with the map interface.

Customize user interface

Leverage built-in tools to customize every element of the user interface, including changing map templates or toggling data layers to add or remove information.



ANTICIPATED ADVANTAGES

Deloitte's Arctic Insights solution assists agencies and commercial enterprises in modeling the future of the arctic, helping them both strategically and tactically:



Model and evaluate change over time and in the future across differing scientific models



Identify and plan for future national security challenges that may lead to international disputes and conflict



Inform infrastructure investment based on known and predicted locations of natural resources such as natural gas fields.



Protect wildlife and indigenous communities by predicting impact of sea ice melt on natural habitats and communities that live in or depend on the arctic and prioritizing those most affected.



Build trust with the public by demonstrating a commitment to environmental stewardship, public safety, and responsible resource management

PREPARE FOR TOMORROW, TODAY, WITH ARCTIC INSIGHTS

Arctic Insights leverages Google Cloud's large scale data integration, geospatial analytics, and scenario modeling capabilities with Deloitte cloud, AI, and geospatial subject matter knowledge to provide critical mission support.

Toggle data layers

within the user interface to add or remove information

Visualize predicted sea ice extent

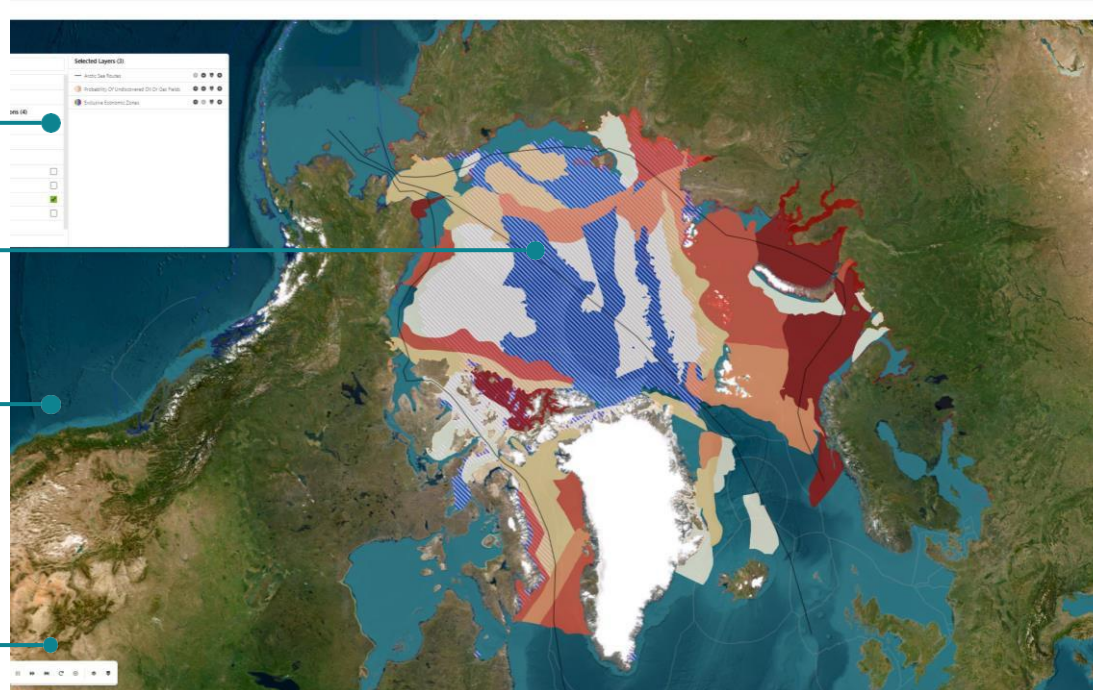
to understand change over time based on best to worst case scenario scientific climate models

Data integrations

to enrich existing geospatial data with additional public or private data sets.

Custom timelapses

that show change over time based on a selected scenario



BUILT ON DELOITTE'S ADVANCED GEOSPATIAL SCENARIO MODELING AND PLANNING PLATFORM

Deloitte's AI/ML accelerators, together with the advanced capabilities of Google Cloud and Google Earth Engine (GEE), help public sector organizations derive insights from geospatial data across various domains, assisting them to make informed decisions, improve operational efficiency, and address mission-critical challenges.

WHY DELOITTE AND GOOGLE CLOUD

Deloitte helps organizations advance their digital transformation efforts. In 2026, Deloitte was named the Partner of the Year for Artificial Intelligence (North America & Asia-Pacific), Gemini Enterprise (Global), Industry Solutions (Global), Managed Security Service Provider (Global), and Infrastructure Modernization (Oracle). This is a testament to our ability to develop innovative solutions that are tailored to meet the specific needs of an organization.

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