GEOSITE

Pioneering the Next Geospatial Digital Transformation for the Insurance Industry

Rachel Hausmann
Head of Partnerships

www.geosite.io

TABLE OF CONTENTS

ABSTRACT

The insurance industry is experiencing a surge in growth opportunities as new ways of integrating geospatial data into underwriting and claims processing are increasing efficiency, faster payouts, and better customer service.

This growth builds on previous digital transformations.

Today's most well known and widely used legacy insurance solutions were founded in the 1970s and 1980s; they pioneered the first digital transformation in insurance with digital databases in the 1990s.

In the early 2000s, the **1st ever geospatial digital transformation** began in the insurance industry with the adoption of geographic information system (GIS) software; a technology that allowed for viewing policy locations and other layers on a digital map. Although GIS had been developed several decades earlier, it began to be more widely applied in the insurance industry beginning in 1999.

In the mid 2010s, two equally important events set the stage for the **2nd geospatial digital transformation** in insurance:

(1) In 2012, the field of deep neural network modeling reached a new higher record of accuracy and ability by the birth of AlexNet. This technological achievement opened the door for deep learning to model climate scenarios, apply machine learning on satellite imagery, aerial imagery, and develop more granular risk models.

(2) In 2013, the commercial space age arrives with SpaceX offering their first privatized launch of a satellite. Scientists, once confined to conducting their research at universities and relying on government grants, begin leaving to start their own SaaS satellite data and Earth observation instrument companies. These scientists had been working on applications of the newest deep-learning technology. Thus the development of the newest climate data, risk models, and post-catastrophe data is available on the market today.

These two events encapsulate (1) the explosion of data capture and availability from earth observation technology, and (2) the ability to process that information using artificial intelligence.

The 2nd geospatial digital transformation in insurance began in the 2020's due to:

(1) The traditional, or legacy, risk and cat modeling companies are slow to adopt and integrate the newest geospatial technology due to out dated tech stacks. Because of the early adoption of legacy systems, insurance carriers have become beholden to them. Unfortunately, legacy systems provide their customers with primarily internally-built peril risk layers, which are often black boxes; this has made it difficult for the insurance industry to apply the newest geospatial data and advanced climate models into their business practices. Additionally, the wholesale adoption of cloud computing has made this move easier to move on from legacy systems. The premise of SaaS companies is based on the ability to deliver modern insurance solutions at scale.

(2) Climate change is increasing the severity of catastrophic events worldwide, leading to a need for more geospatial data to calculate risk and mitigate exposure in the insurance industry.

> (a) 21st century climate models predict an increase in the proportion of hurricanes that reach Category 4 and 5, alongside increased wind speeds and overall wetter hurricanes with a 10-15% increase of precipitation.

> (b) Global sea level rise is expected to rise 1 to 2.5 feet this century. Studies have shown that higher sea levels are leading to flood elevations 15-60% higher from storm surges and hurricanes.

> (c) According to the United Nations, the number of major floods has doubled between 2000 - 2019, compared to 1980 - 1999, and is the most frequent type of disaster globally.

We are in a new era of rapid growth in variety and volume of geospatial data.

- Companies started by scientists during the new commercial era are 5+ years old and now have years of model building and validation under their belt.

- The satellite, drone, and aerial data markets are expected to almost triple by 2030 from $6 billion to $17 billion.

- Climate modeling markets are expected to grow 4x over the next 5 years.

This new era of geospatial data poses challenges for insurance carriers.

6 CHALLENGES FOR INSURANCE IN THIS NEW ERA

1 Barrier to entry in the geospatial marketplace is high. As a plethora of new geospatial data for underwriting and claims has become available, most insurance companies don't know who these providers are and what they are offering.

2 Data is advancing faster than insurance carriers can consume it due to a reliance on legacy systems.

3 Insurance carriers experience long wait times to access post-catastrophe data.

4 Insurance carriers experience coverage gaps and lack of granularity for underwriting data.

5 Insurance carriers hold many contracts with many providers for underwriting and claims data.

6 Carriers' property location data is often inaccurate making geospatial analysis difficult. On average, only 30% of an insurance carriers' portfolios are accurately geocoded for claims evaluation.

GEOSITE'S UNDERWRITING & CLAIMS SOLUTIONS

Our solutions are offered through two products: An API service, Bedrock, that can be integrated directly into core BI tools and a visualization platform, Ascend, where the data can be visualized and leveraged directly.

We've built Geosite's underwriting and claims solutions on three pillars: Easy to understand, Easy to use, Valuable. This is what we provide:

1 An Understanding of the Geospatial Data Market

As the geospatial market continues to mature and new products are available, our Data Science and Partnerships teams are constantly integrating new data and technologies. We currently work with 28 providers and leverage state-of-the-art machine learning to recommend different solutions based on a carrier's unique needs, taking into account geography, portfolio composition, and budget. All off our partners go through an evaluation process before allowing them onto our platform, so carriers can be sure they are getting the best data in the world. Clients can also request specific data if a desired provider is not already part of the Geosite data ecosystem. Ascend and Bedrock are both configurable to support analytics at the property and portfolio level to allow claims and reserving teams' access to the data needed across a variety of workflows.

Geosite's integration of new data and analytic sources will be ensure that carriers have the right data today and into the future.

2 Modern Technology for New Geospatial Data

Geosite's underwriting and claims solutions are built on a modern tech stack. That enables us to be data agnostic, meaning we can work with a wide variety of data sources and formats, including high-resolution satellite and aerial imagery, climate models, property and parcel footprints, flood depth rasters, and AI algorithms. The widely used legacy systems were built in a way that does not easily allow for the integration of new data sources, and may require significant customization. Specific examples of this include:

> a) The format of the new geospatial data may be incompatible with the legacy system's data format, requiring complex data transformations to enable compatibility.
>
> b) Legacy systems may not be designed to handle the volume and velocity of real-time geospatial data. The system may struggle to ingest and process the large volumes of data coming in from multiple sources in real-time, leading to delays and potential inaccuracies in the risk modeling output.

Overall, integrating new geospatial datasets into a legacy system can be a complex and time-consuming process, requiring significant effort and resources. This can slow down innovation and limit a carrier's ability to adapt to new technologies and market demands.

3 Faster Access to Post-Catastrophe Data

Fewer contracts, fewer headaches. Geosite's claims solutions provide insurance carriers with empirical post-catastrophe data within 24-48 hours after data collection. Rather than wait weeks or months to understand the scope of impact, the reserving and claims team can get to work immediately. In addition, by being a part of the Geosite ecosystem, Geosite and our partners can flag upcoming Nat Cat events that carriers might not otherwise be tracking due to size or location. This tipping and queuing can help ensure total coverage for even some of your more remote portfolios.

> *"Using the Geosite platform, with the satellite, aerial and property attributes capabilities, we [...] can dramatically reduce time, more than 50% for sure."*
>
> *- Jack Toyama, Head of BizDev, MS&AD Ventures*

4 Full Coverage Underwriting Data

Geosite addresses data gaps and provides insurance carriers with the necessary data to make more informed underwriting and claims decisions. Sometimes geospatial data may not be available or may not be accessible to insurance carriers. This can happen for several reasons, such as:

1) **Data fragmentation**: Geospatial data can be scattered across multiple sources, making it difficult for insurance carriers to find and aggregate it to for full coverage of policies.

2) **Data quality**: Geospatial data may not be accurate or up-to-date in certain geographies, leading to incorrect assessment of risk.

3) **Data availability:** Geospatial data may simply not exist for certain areas, especially in developing countries or remote areas. Geosite can connect with providers to open new data coverage in these areas.

5 Hold One Contract for Many Data Sources

Fewer contracts, fewer headaches. By leveraging Geosite's underwriting and claims solutions, carriers no longer need to pursue, negotiate, and manage individual contracts with different providers. Geosite handles the data acquisition process to flow data from multiple sources into the hands of underwriting, claims, and reserving teams. Geosite holds the licenses and contracts with each data provider so the insurance carrier holds only one contract: with Geosite. By having one contract, we reduce procurement time and legal review to speed up bringing in new science and peril data.

6 Improved Location Accuracy

Accurate location information is the foundation for claims management. On average, only 30% of insurance carriers' portfolios are accurately geocoded for claims evolution. Geosite offers geolocation services through both Bedrock and Ascend. Geosite's geocoding consensus algorithm has been demonstrated to increase the location accuracy of a carrier's assets by at least 50%.
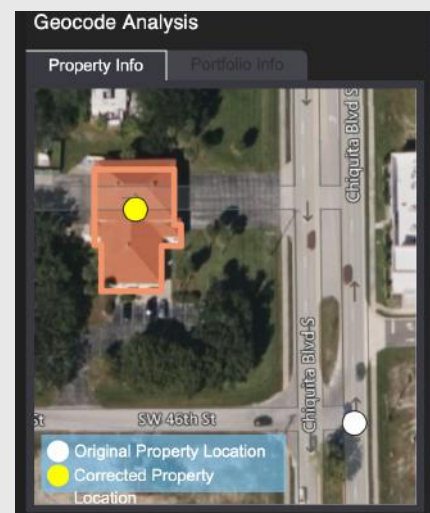
Above: White circle represents original latitude and longitude of address provided by the insurance carrier. The yellow circle represents the corrected location by Geosite's consensus algorithm.
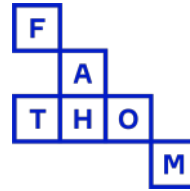
PARTNERS

Our partnership program continues to grow.
If you are interested in partnering, please contact Rachel Hausmann at rhausmann@geosite.io
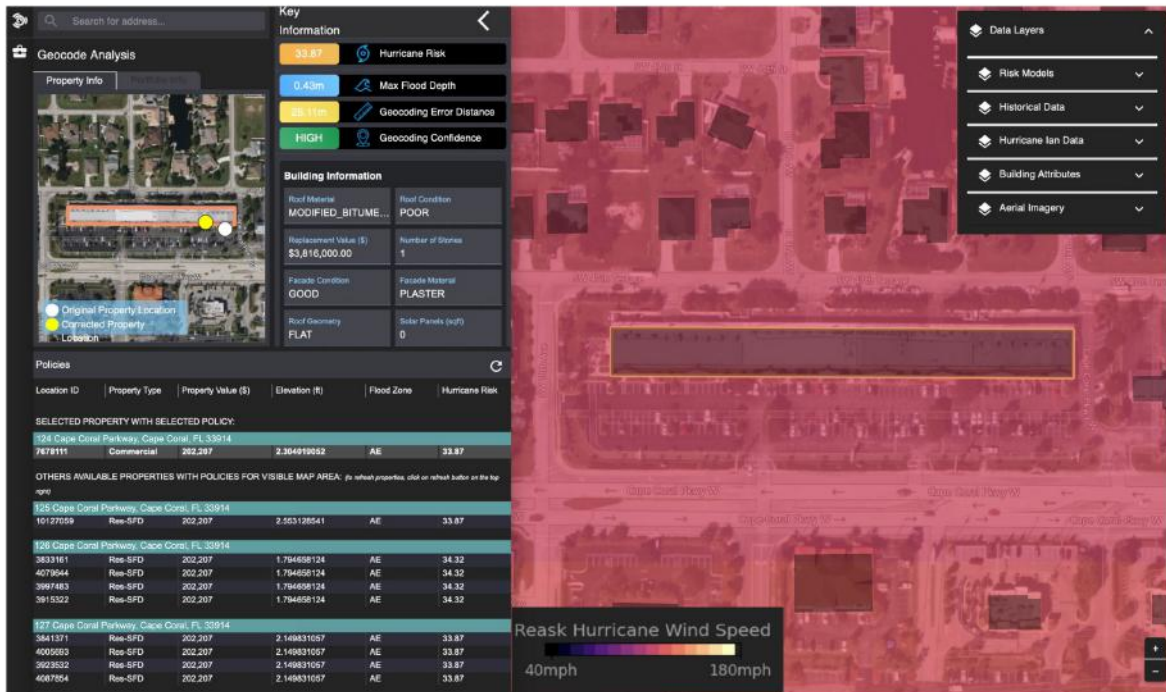
Above: A zoomed-in view of the Geosite Ascend Platform with our partner Reask's Hurricane Ian wind speed map, overlaid on a customers policy location with Tensorflight property analytics and Geosite's geocoding consensus algorithm applied.
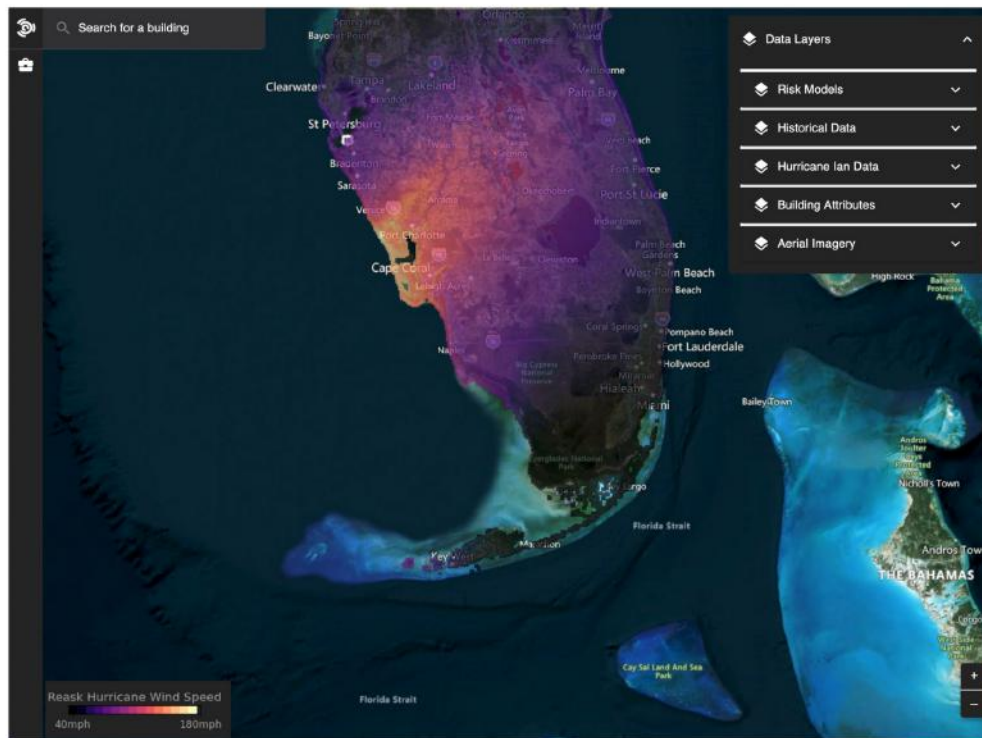
Above: A zoomed-out view Geosite's Ascend Platform with Reask's Hurricane Ian wind speed map over the State of Florida.