

AIR Probabilistic Flood Hazard Maps in Touchstone

HIGHLIGHTS

- Available¹ for all of Brazil, Canada, China, India, Thailand, and Vietnam
- Assess location-level flood hazard at the 100-, 250-, and 500-year return periods for China and Thailand; at the 25-, 50-, 100-, 250-, and 500-year return periods for Canada; and at the 25-, 50-, 100-, 200-, 250-, and 500-year return periods for Brazil, India, and Vietnam
- Monitor risk accumulations and implement risk mitigation strategies
- Make informed underwriting and pricing decisions

Flood is a pervasive global peril, and effective flood risk management is one of the top concerns in the re/insurance industry. As exposures continue to grow in flood-prone regions, AIR is accelerating development efforts for probabilistic inland flood and storm surge models, as well as for flood hazard maps.

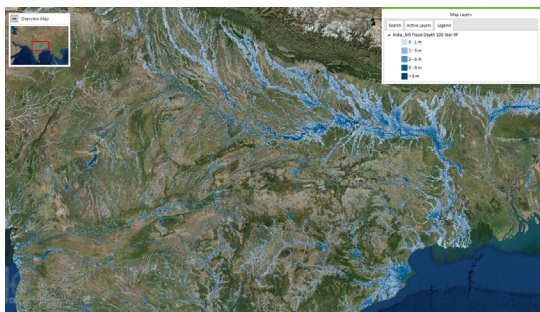
Available as a geospatial layer for use with AIR's Touchstone® platform, AIR flood hazard maps enable a sophisticated understanding of the threat posed by complex river networks. They can help you manage accumulations, determine whether a risk meets underwriting guidelines, and develop effective portfolio management and risk transfer strategies.

What Is a Flood Hazard Map?

AIR flood hazard maps are easy-to-use, scientifically rigorous tools that display the extent of the flooding associated with river flow magnitudes at the 100-, 250-, and

500-year return periods (1%, 0.4%, and 0.2% annual exceedance probabilities) for China and Thailand; at the 25-, 50-, 100-, 250-, and 500-year return periods (4%, 2%, 1%, 0.4%, and 0.2% annual exceedance probabilities) for Canada; and at the 25-, 50-, 100-, 200-, 250-, and 500-year return periods (4%, 2%, 1%, 0.5%, 0.4%, and 0.2% annual exceedance probabilities) for Brazil, India, and Vietnam. They use the same underlying flood mapping methodology available in AIR's probabilistic inland flood models and capture all sources of riverine flooding, including from tropical cyclones.

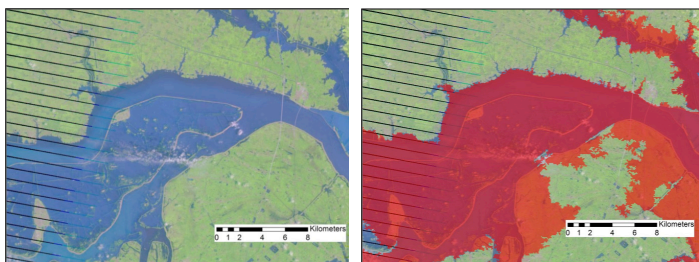
The maps are developed using available historical flood flow information to estimate flood frequency. For each return period of interest, the associated flow magnitude for every segment of the modeled river network is estimated. A physically based hydraulic modeling process (that accounts for factors like terrain, soil type, and land use/land cover) then translates flows to water surface elevation at each river cross section before determining the flood extent, or how far the water travels across the floodplain.



100-year flood hazard map for India in Touchstone



AIR flood hazard maps do not represent potential flood events; instead, they delineate areas of *uniform hazard*. In other words, they show the flood inundation extent if all portions of the rivers experienced the same severity of flooding (in terms of return period) at the same time. However, for small geographical areas, historical flood footprints can exhibit inundation patterns similar to those provided in the hazard map of comparable severity.



2007 historical flood footprint in Bengbu along the Huai River in China, July 2007 (left); AIR 100-year flood hazard map (right)

Flood Depths Available for Brazil, India, and Vietnam

AIR's probabilistic flood hazard maps for Brazil, India, and Vietnam allow users to accumulate on flood depth as well as spatial extent. The depths for Brazil's, India's, and Vietnam's flood hazard maps are 0-1, 1-3, 3-6, 6-9, and 9+ meters for six return periods: 25-, 50-, 100-, 200- 250-, and 500-year.

Underwrite with Confidence

AIR flood hazard maps provide location-level visual intelligence to support informed, confident underwriting decisions and risk-based pricing. They capture flood risk from multiple river basins that can affect the location(s) of interest. You can immediately see where properties are

located relative to varying levels of flood hazard and assess whether exposures meet underwriting guidelines. Switch to satellite view and drill down to the street level to get a closer view of the exposure and its surroundings. Used with AIR's market-leading Touchstone platform, you can derive fast, actionable insight into new business opportunities to gain an edge over your competitors and to avoid risk they might not even know exists.

Manage Accumulations

Evaluate your accumulations of risk at the portfolio level. With Touchstone's powerful Geospatial Analytics Module, you can accumulate risk using AIR flood hazard maps to identify where you may be overexposed and to develop effective risk mitigation strategies. You can even obtain a more granular view by viewing exposures by geography, line of business, construction type, or occupancy.

And unlike other GIS solutions available in the market, accumulation analyses in Touchstone are supported by AIR's full financial engine. This means that you can accumulate not just risk counts and replacement values, but also exposed limits after accounting for a full range of policy terms (including deductibles, layers, limits, and reinsurance treaties).

**To learn more, please contact your
AIR representative or visit us at:
www.air-worldwide.com**

ABOUT AIR WORLDWIDE

AIR Worldwide (AIR) provides risk modeling solutions that make individuals, businesses, and society more resilient to extreme events. In 1987, AIR Worldwide founded the catastrophe modeling industry and today models the risk from natural catastrophes, terrorism, pandemics, casualty catastrophes, and cyber attacks, globally. Insurance, reinsurance, financial, corporate, and government clients rely on AIR's advanced science, software, and consulting services for catastrophe risk management, insurance-linked securities, site-specific engineering analyses, and agricultural risk management. AIR Worldwide, a Verisk (Nasdaq:VRSK) business, is headquartered in Boston with additional offices in North America, Europe, and Asia. For more information, please visit www.air-worldwide.com.