

## Coastal Inundation & Flooding Analysis

Predicting and mapping the effects of coastal storms and sea-level rise are important because of the high vulnerability and potentially high costs associated with these effects in developed coastal areas. With increasing property values, development, and population growth in coastal and other flood prone areas, flood induced losses are increasing, and ways to prevent or mitigate floods are vital. By mapping the flood zones of storms with ASA's inundation analysis tools and flood modeling services, forecasters, emergency management officials, engineers, insurers, and property owners can easily assess the potential impacts associated with flooding events, and learn how to reduce vulnerability.



### Solutions:

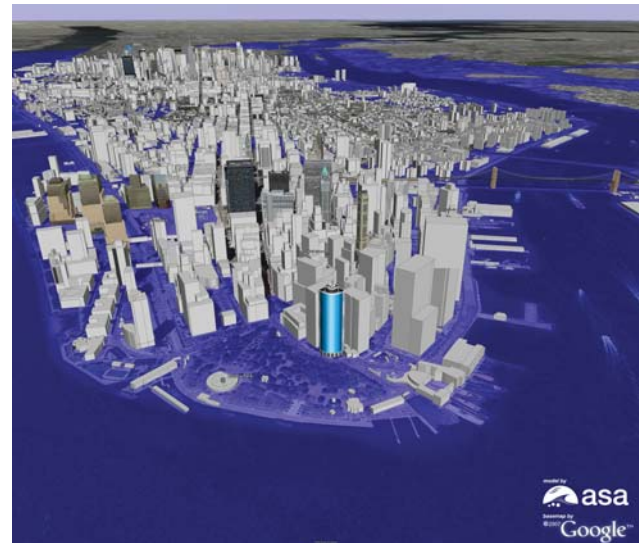
#### Inundation Risk Analysis



Responding to the growing need for impact analysis of flood events, ASA has developed and applies comprehensive new technologies that can determine potential impacts to public safety and property. ASA provides functional teams to evaluate potential regional extreme hydrometeorological events and other flooding mechanisms that may impact vulnerable areas. The results of this work will often be used in a risk analysis by design engineers to develop stormwater and flood control structures and other facilities, or to develop operational procedures to protect the property and human safety for the region or project.

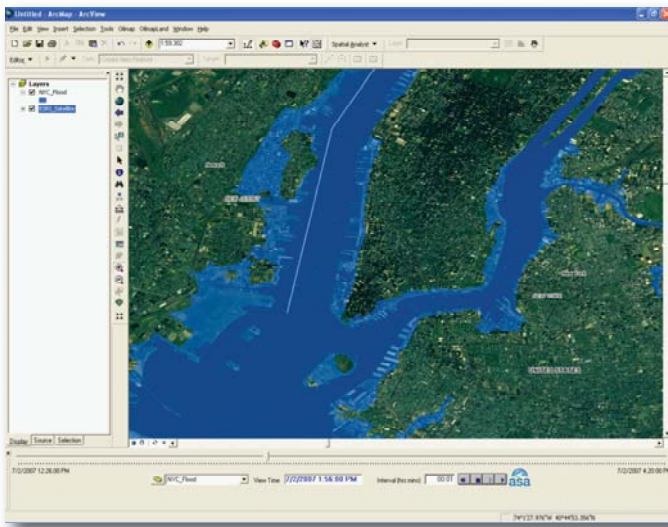
#### ASA Inundation Toolbox™

ASA uses sophisticated in-house inundation analysis and modeling tools as well as knowledge and expertise in mapping and analyzing flood potential from storms and sea level rise. ASA has developed the Inundation Toolbox™--a software system that connects storm surge model predictions to GIS mapping and analysis capabilities to generate maps of areas at risk to inundation from the predicted surge. These maps can then be provided to the public on a website or automatically emailed to interested parties, including local planners, emergency workers, and media outlets. The Inundation Toolbox is an important tool used by ASA for making coastal residents and businesses aware of their vulnerability by allowing them to visualize potential flooding of their properties. These maps allow them to pinpoint familiar locations and evaluate their own susceptibility to the event being simulated. The Inundation Toolbox can be used to hindcast or forecast short-term flooding events defined by design storms, historical storms, or impending storms, as well as long term or permanent flooding events such as the effects of sea level rise.



Inundation Toolbox model output showing ASA's simulated inundation scenario for New York City. This scenario was based on a Category II hurricane storm surge of 4.7 meters combined with a future sea-level rise prediction of 0.68 meters (source: Canadian Climate Center). The SLOSH total for the simulation was 5.38 meters (17.7 feet).





ASA's Inundation Toolbox easily integrates with ESRI's ArcGIS and Google Earth.

By applying the Inundation Toolbox and by consulting with ASA's experts for inundation and flooding analysis, planners, insurers, and private property owners are provided with:

- Flooding results in a variety of formats allowing dynamic visualization of impacts
- Flood maps and video simulations that can be easily distributed via email, the Web, television, etc. that easily show areas of vulnerability and impact scenarios
- A system framework that can store local, regional, and national contingency plans and that easily integrate with ESRI's ArcGIS and Google Earth
- Visualizations of potential flooding based on any storm surge or sea level rise predictions
- Resource allocation support

### Inundation Analysis Clients Include:

- |                                      |  |   |
|--------------------------------------|--|---|
| • AREVA                              | • Surfing Magazine                           | • Union of Concerned Scientists                       |
| • EPA CLIMB Project Team             | • Bishop Museum                              | • University of Rhode Island Coastal Resources Center |
| • National Environmental Trust       | • Gary Braasch Photography                   | • The New York Times                                  |
| • Sunoco                             | • Senator Sheldon Whitehouse of Rhode Island | • University of Graz (Austria)                        |
| • Rhode Island Metro Bay Partnership | • Environment Rhode Island                   | • Group for the East End (NY)                         |
| • Vanity Fair Magazine               | • The Boston Globe                           |   |

ASA science, services, and solutions provide functional answers to the world's toughest questions confronting industry, academia, energy, environment, and health & safety. ASA's innovative technology solutions are combined with over 25 years of service experience with issues including: water quality management, biological assessment, and oil and hazardous materials modeling. ASA develops and applies modeling software, technology platforms, and data delivery solutions to solve problems relating to marine, freshwater, air, and land resources.

ASA's family of environmental modeling tools that are available for licensed use and customization include: AIRMAP™, CHEMMAP™, HYDROMAP™, OILMAP™, SARMAP™, SIMAP™, MUDMAP™, WQMAP™, and EDS: Environmental Data Server™.

ASA's clients include international governments, universities, research institutes and major energy companies. ASA has a proven track record in providing high quality scientific support services to these clients in support of their global operations.

For more information visit our web site at [www.asascience.com](http://www.asascience.com).



55 Village Square Drive • South Kingstown, RI 02879 • +1 401 789-6224  
 Narragansett | Seattle | São Paulo | Gold Coast | Perth  
[www.asascience.com](http://www.asascience.com)