How to build an effective hazard web map

Web maps are **online maps** which are **interactive**. They allow users to move around the map easily, turn on and off different information and are often more **engaging** than standard static maps. This step by step guide is here to help you plan and create a web map to communcate hazard and risk in your local region.

1 Determine your audience

How? Identify groups or individuals which need to be informed (e.g. living close to the hazard) or those that would benefit from the map (e.g emergency services, businesses, critical infrastructure officers).

Tips: Remember that you may have multiple audiences, which may require more than one map.

2 Find out the needs of your audience

How? Interviews, focus groups, online surveys, social media, polls can all be used to gather information on users' needs and preferences - *see an example survey here.*

Tips: Do not assume that the 'general public' has uniform needs and preferences, you may need to subdivide into different audiences such as; age groups, location, or accessibility requirements.

3 Define the purpose of the map

How? Decide on the intended outcomes. This may be a change in behaviour, an action, or improved education. Think about time and spatial scales. Is this only for a small village, showing one hazard scenario? Or a large city with multiple hazards?

Tips: Think about which audience questions your map will aim to answer. You must take into account balance between what your user wants and what you need to communicate.

4 Choose a web mapping tool

How? Do some research into the different tools which are available for producing webmaps. Which tool you use will depend on a number of factors specific to your needs, limitations and budget. Many basic webmaps can be made for free. Examples include: ArcGIS Online, CARTO (formerly CartoDB), and Mango maps.

Tips: Tools range in price, but you may already have a licence with ArcGIS.

5 Collect and format the data

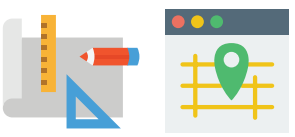
How? Each tool will work with data in a variety of filetypes (e.g. Shapefile, GeoJSON, CSV, GeoTIFF -Raster, WMS, KML, File Geodatabase, MapInfo TAB). You do not have to understand what all of these mean, but if you are familiar with any of them already, you can use that type for a web map.

Tips: If you are creating datasets in a desktop GIS, ensure you choose the most suitable format for the kind of data you wish to visualize in a webmap.

6 Upload data and construct your map

How? This is dependent on the software chosen and the format of your data. Each mapping software will have instructions on how to upload and create a basic map. The uploaded data will become layers in your map.

Tips: Start with a plan of your map to help you decide on hierarchy and additional features you would like as well as map design.



7 Make your map appeal to your audience

How? Preferences identified during step 2 can be used to make maps that your audience wants to use. Make the map simple and clear, keeping the number of layers to a minimum (maximum 6). Choose colours and symbols that your audience will understand and interpret correctly. Add helpful hints and tips to explain how to use the map and to help the user understand more complex hazard information.

Tips: Look at some good web map designs here. ColorBrewer is also useful.

8 Test and revise

How? Test the map on your audience before sharing. Use focus groups, surveys or post examples of your map online with opportunity for feedback. Technical and design problems can be fixed and based on early feedback changes, can be made before the final version.

Tips: Your audience will look at the map on a variety of different internet browsers and devices - mobile, tablet, desktop. Understanding and testing the main devices and browsers your audience uses will help.

9 Share with your audience

How? Embed or link the map within your own website. Make it easy to find and open. Link to the new map from related pages.

Tips: Share the website on social media and at public outreach events. People are unlikely to discover this map on their own, especially in areas where hazard awareness is low (e.g communities near inactive volcanoes).

10 Regularly evaluate the map

How? See how your audience uses the map, what works well and what does not. Ask for feedback and make sure you update the map when hazard data changes.

Tips: Analytic software such as Maptiks can provide you with insights into how users are navigating through the map. You could also set up an email feed-back form on your website. Try and include a date of publication on the map.

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