



FEMA



Stay Dry (version 2.0)

Add Flood Hazard Map Layers to Your GIS Application

Purpose and Appropriate Use

The “Stay Dry” utility allows you to use Google Earth™¹ to view basic flood hazard information from FEMA’s National Flood Hazard Layer (NFHL)² using an address or other location information. You can view flood hazard zones, cross sections and labels, community names and boundaries, Flood Insurance Rate Map (FIRM) numbers and boundaries, and Letter of Map Revision (LOMR) case numbers and boundaries.

FEMA publishes new FIRMs in the form of paper maps, digital map images, and digital geospatial flood hazard data like those in the NFHL. When used appropriately, these representations are equivalent to one another and represent official FEMA designations of special flood hazard areas, base flood elevations, insurance risk zones, and other regulatory information.

If you plan to use the mapped flood information displayed in Google Earth for official purposes, please ensure that imagery and other map information displayed with the flood data meet FEMA’s standards for map accuracy³.

Before You Start

You must have the Google Earth viewer software installed on your computer. The starting point for obtaining the software is <http://earth.google.com/>. Information about the system requirements needed for your computer to run the software is available through <http://earth.google.com/support/>. A user guide is available at <http://earth.google.com/userguide/>. Your computer must have a high-speed Internet connection. Download the “Stay Dry” .kmz file to your computer to allow the Google Earth viewer to access NFHL data. It is available through FEMA’s Map Service Center (MSC) at <http://msc.fema.gov>. Click on the link “Using Web Map Service in Google Earth™.” Download the file to your computer using the instructions provided on the web page. For best performance please delete or turn off previous versions of the “Stay Dry” or “FEMA NFHL” applications that you have loaded in Google Earth.

Opening the Application

First session: Double-click on the “Stay Dry” .kmz file that you downloaded to your computer. Google Earth will open and display the “Stay Dry” welcome screen (see area a in Figure 1) and the “Stay Dry and FloodSmart!” folder under Temporary Places in the “Places” panel (area b). Other important areas are the “Fly to” entry field (area c), the navigation controls for Google Earth (area d), and the eye altitude (“Eye alt”) readout (area e).

Sources of Additional Information

Questions or comments about the Stay Dry application: Direct them to miphelp@riskmapcds.com. Please include the words “Google Earth” in the subject of your message.

To view and buy flood maps and data: See the MSC Web site at <http://msc.fema.gov>.

For information and resources associated with using or requesting changes to FEMA Flood Maps: See the Flood Hazard Mapping Web site at <http://www.fema.gov/plan/prevent/fhm/index.shtm>.

For general information about flood risk, flood insurance, and the National Flood Insurance Program: See the FloodSmart Web site at <http://www.floodsmart.gov>.

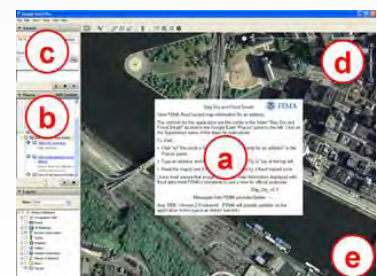


Figure 1. Opening view for the “Stay Dry” utility. Areas of interest include the (a) welcome message, (b) “Stay Dry and FloodSmart!” folder in the Places panel, (c) “Fly to” entry field, (d) navigation controls, and (e) eye altitude readout.

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¹ Names of products are provided for descriptive purposes only and do not represent an endorsement by the United States Government.

² The National Flood Hazard Layer is a computer database that contains the digital flood hazard information from FEMA’s Flood Map Modernization program. These map data include Digital Flood Insurance Rate Map databases and later changes made by Letters of Map Revision. They do not include changes identified by property description. Maps that have not been modernized are not available in the NFHL but can be viewed and ordered from FEMA’s Map Service Center at <http://msc.fema.gov>.

³ A base map shows the location of roads and railroads, streams and lakes, boundaries, structures, and other features. When used with flood hazard data for official purposes, base maps must have a horizontal radial accuracy (Accuracy) better than or equal to 38 feet (11.58 meters) as measured using the National Standard for Spatial Data Accuracy. (This measure is equal to maps of scales larger than or equal to 1:12,000 under the old National Map Accuracy Standard.)

Subsequent sessions: If you tell Google Earth to save the “Stay Dry” application at the end of a session, it will be available when you re-open Google Earth in later sessions. Otherwise, double-click on the .kmz file.

Finding the Flood Hazard for Your Location

To view flood hazard information:

1. Click on the circle () in front of “ View flood hazards for an address.” in the Places panel (see area b in Figure 1). The map legend and a sample map will be displayed.
2. In the “Fly to” entry field (see area c in Figure 1), enter an address (e.g., 1927 Ocean Street, Santa Cruz, CA).
3. Click the Enter key to “fly to” the location. (Be sure that the eye altitude is 10,000 feet or lower.)
4. Read the flood hazard information on the map (see Figure 2). Use the map legend to interpret the symbols.



Figure 2. Results after “flying to” an address in Santa Cruz, California. The flood hazard information includes (a) flood hazard zones, (b) cross sections, (c) FIRM panels, (d) communities, and (e) LOMRs.

If flood hazard information is available the map displays:

- **Flood hazard zones:** Areas of high flood hazard (all the A (i.e., A, AE, etc.) and V (V and VE) zones) are shown in red tint. Specific flood insurance risk zone designations (for example, Zone VE or Zone AO) are shown by red line patterns that overlay the tint. Areas of medium-to-low hazard are shown in pink tint overlaid by pink lines. Areas of low hazard are not covered by tint or lines. The hazard has not been determined for areas covered by gray tint and lines.

To learn the definitions of the zones, click on the layer name “View flood hazards for an address.” A set of instructions will open. Click on the link “What are the different flood insurance risk zone designations and what do they mean?” at the bottom of the instructions. The definitions will appear in a new window.

- **Cross sections:** When used with the Flood Insurance Study for the community, cross sections are the basis for calculating the elevation of flood water during a base flood. The identifier and path for cross sections are shown in orange in selected flood insurance risk zones. This service does not provide static base flood elevations or flood depths.
- **Communities:** The names and boundaries of communities are

shown in brown text and lines symbols. If only a name is visible, the entire view is within the community.

- **FIRMs:** The 11-character number and boundaries of map panels are shown in light blue. If only a number is visible, the entire view is within the panel.
- **LOMRs:** The case number and boundaries of effective LOMRs are shown in dark blue. If only a number is visible, the entire view is within the LOMR.

If flood hazard information is not available the area is shaded in yellow (see Figure 3). See the MSC Web site at <http://msc.fema.gov> to find other flood hazard information for your location.

Other Notes

- View the instructions by clicking on the hyperlinked names in the Places panel. (See area b in Figure 1.)
- Other location information (e.g., latitude and longitude coordinates) can be substituted for an address. Be sure that the eye altitude of the map is 10,000 feet or lower.
- If you cannot see the “Stay Dry and Flood Smart!” folder or “Fly to” entry field (areas b and c in Figure 1), turn on the sidebar. Go to the menu bar (File, Edit, View, etc.) at the top of the Google Earth window, click on View, and click on Sidebar.
- If you cannot see the “Eye alt” (eye altitude) readout (area e in Figure 1), turn on the status bar. Go to the menu bar (File, Edit, View, etc.) at the top of the Google Earth window, click on View, and click on Status Bar.

Ending the Session

When you are finished viewing flood hazard information but want to do other activities in Google Earth, click on the circle () in front of “ Turn off all flood information.” When you close Google Earth, it will ask what you would like to do with the “Stay Dry” folder. If you:

- Answer “Yes,” Google Earth will add “Stay Dry” to your “My Places” folder (see area b in Figure 1). “Stay Dry” will be available each time you use Google Earth.
- Answer “No,” Google Earth will not save “Stay Dry” internally for later use. You can use “Stay Dry” again by double-clicking on the kmz file you saved to your computer.
- Answer “Cancel,” Google Earth will remain open.