



DEPARTMENT OF THE INTERIOR

U.S. Geological Survey

[GX16MN00F1F2000]

Agency Information Collection Activities: OMB Control Number 1028-0109; iCoast –

Did the coast change?

AGENCY: U.S. Geological Survey (USGS), Interior.

ACTION: Notice of a renewal of a currently approved information collection (1028-0109).

SUMMARY: We (the U.S. Geological Survey) will ask the Office of Management and Budget (OMB) to approve the information collection (IC) described below. As required by the Paperwork Reduction Act (PRA) of 1995, and as part of our continuing efforts to reduce paperwork and respondent burden, we invite the general public and other Federal agencies to take this opportunity to comment on this IC. This collection is scheduled to expire on September 30, 2017.

DATES: To ensure that your comments are considered, we must receive them on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may submit comments on this information collection to the Information Collection Clearance Officer, U.S. Geological Survey, *gs-info_collections@usgs.gov* (email). Please reference ‘Information Collection 1028-0109, iCoast—Did the Coast Change?’ in all correspondence.

FOR FURTHER INFORMATION CONTACT: Karen L.M. Morgan, Coastal Geologist, St. Petersburg Coastal and Marine Science Center, U.S. Geological Survey,

600 4th. St. South, St. Petersburg, FL 33701, 727-502-8037, kmorgan@usgs.gov. You may also find information about this ICR at *www.reginfo.gov*.

SUPPLEMENTARY INFORMATION:

I. Abstract

As part of its mission to document coastal change, the USGS has been taking aerial photographs of the coast before and after each major storm for the past 21 years to assess damages to the natural landscape and the built environment. A typical mission can consist of between approximately 3,000-10,000 photographs. The digital photo-archive maintained by the USGS is a valuable environmental record almost 200,000 photographs taken before and after 24 extreme storms along the Gulf and Atlantic Coasts. At the same time, the USGS has been developing mathematical models that predict the likely interactions between storm surge and coastal features, such as beaches and dunes, during extreme storms, with the aim of predicting areas that are vulnerable to storm damage. Currently the photographs are not used to inform the mathematical models. The models are based primarily on pre-storm dune height and predicted wave behavior.

If scientists could “ground truth” coastal damage by comparing before and after photographs of the coast, the predictive models might be improved. It is not physically or economically possible for USGS scientists to examine all aerial photographs related to each storm, however, and automation of this process is also problematic. Image analysis software is not yet sophisticated enough to automatically identify damages to the natural landscape and the infrastructure that are depicted in these photographs; human perception and local knowledge are required. ‘iCoast—Did the Coast Change?’ (hereafter referred to

as ‘iCoast’) is a USGS research project to construct a web-based application that will allow citizen volunteers to compare these before and after photographs of the coast and identify changes that result from extreme storms through a process known as ‘crowdsourcing’ (<http://en.wikipedia.org/wiki/Crowdsourcing>). In concept, this application will be similar to those of other citizen science image comparison and classification projects such as the Citizen Science Alliance’s Cyclone Center project, (see www.cyclonecenter.org), which asks people to classify types of cyclones by comparing satellite images.

There are two distinct purposes to ‘iCoast’:

- to allow USGS scientists to ‘ground truth’ or validate their predictive storm surge models. These mathematical models, which are widely used in the emergency management community for locating areas of potential vulnerability to incoming storms, are currently based solely on pre-storm beach morphology as determined by high-resolution elevation data, and predicted wave behavior derived from parameters of the approaching storm. The on-the-ground post-storm observations provided by citizens using ‘iCoast’ will allow scientists to determine the accuracy of the models for future applications, and
- to serve as a repository of images that enables citizens to become more aware of their vulnerability to coastal change and to participate in the advancement of coastal science.

The application consists of sets of before-and-after photographs from each storm with accompanying educational material about coastal hazards. Since the photographs of a given area were taken on different dates following slightly different flight paths, the

geographic orientation of before and after images may differ slightly. Often there will be more than one image covering approximately the same geographic area and showing the same coastal features. Participants are asked to identify which post-storm image best covers the same geographic area and shows the same natural and man-made features as the image taken after the storm. After the best match between before-and-after aerial photographs is established, participants will classify post-storm coastal damage using simple one-or-two word descriptive tags. This type of tagging is similar to that used in commercial photo-sharing websites such as Flickr (www.flickr.com). Each participant will classify photographs of their choice. They may classify as many photographs as they wish in as many sessions as they choose.

In order for a citizen to participate in classifying the photographs, the following information must be collected by this application:

- 1) Participants will login to the 'iCoast' application using externally issued credentials via the Federally approved "Open Identity Exchange" (www.openid.net) method. This Federal Government program benefits users by accelerating their sign up, reducing the frustration of maintaining multiple passwords, allowing them to control their own identity, and minimizing password security risks. User credentials will be managed and authenticated by Google, an Identity Provider approved by the Federal Government. During the login process participants will be redirected to a Google owned and operated login page. Following successful authentication of Id and password, participants are asked by Google to confirm agreement to their Google e-mail address being shared with 'iCoast'. Users have the option to decline this and halt the login process with no information shared to 'iCoast'. If a participant accepts the sharing of their e-mail address

then the USGS will store the address within the 'iCoast' database. 'iCoast' is never supplied nor does it request a participant's password directly. Storing of the participant's email address by 'iCoast' is necessary to permit the pairing of Google login credentials with their 'iCoast' profile. The USGS will encrypt all stored participant email addresses. No other information or Google account access is shared by Google to 'iCoast' and nothing is shared from 'iCoast' to Google at any time.

2) Level of expertise: At initial log in to 'iCoast', the participant will be asked to indicate what type of 'crowd' or group he or she belongs to by picking from a pre-determined list (e.g. coastal scientist, coastal planner, coastal resident, general public, etc.). The participant may also optionally contribute his or her professional affiliation in an open text box, but this is not required. Professional affiliation may provide additional information to the scientists to more fully assess the accuracy of a participant's classifications. Provision of level of expertise alone will not allow an individual to be personally identified.

3) Keyword tagging: After comparing pre-and post-storm aerial photographs, participants can select predefined keyword tags OR they can submit their own in a free-form text field. The keyword tags will help the USGS determine classification accuracy, and confirm or refute pre-storm predictions of coastal inundation and damage derived from the mathematical storm surge models.

This application will have many benefits. It will serve the cause of open government and open data, in that these images will be available to the public in an easily accessible online format for the first time. It will enhance the science of coastal change and allow for more accurate storm surge predictions, benefitting emergency managers

and coastal planners. It will also familiarize coastal communities with coastal processes and increase their awareness of vulnerabilities to extreme storms. We anticipate that this application will be used by educators to further science, technology, engineering and mathematics (STEM) education; outreach to educators is planned.

II. Data

OMB Control Number: 1028-0109.

Form Number: None.

Title: iCoast—Did the Coast Change?

Type of Request: Renewal of existing information collection.

Affected Public: Coastal scientists, coastal managers, marine science students, emergency managers, citizens/residents of coastal communities.

Respondent's Obligation: None. Participation is voluntary.

Frequency of Collection: Occasional.

Estimated Total Number of Annual Responses: 2000 individuals

Estimated Time per Response: 5 minutes

Estimated Annual Burden Hours: 167 hours.

Estimated Reporting and Recordkeeping "Non-Hour Cost" Burden: There are no "non-hour cost" burdens associated with this IC.

Public Disclosure Statement: The PRA (44 U.S.C. 3501, et seq.) provides that an agency may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number and current expiration date.

III. Request for Comments

We are soliciting comments as to: (a) Whether the proposed collection of information is necessary for the agency to perform its duties, including whether the information is useful; (b) the accuracy of the agency's estimate of the burden of the proposed collection of information; (c) ways to enhance the quality, usefulness, and clarity of the information to be collected; and (d) how to minimize the burden on the respondents, including the use of automated collection techniques or other forms of information technology.

Please note that the comments submitted in response to this notice are a matter of public record. Before including your personal mailing address, phone number, email address, or other personally identifiable information in your comment, you should be aware that your entire comment, including your personally identifiable information, may be made publicly available at any time. While you can ask us in your comment to withhold your personally identifiable information from public view, we cannot guarantee that we will be able to do so.

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