

1Supporting Statement A

OMB Control Number 1028-NEW “User Testing of Graphics for USGS Aftershock Forecasts”

Terms of Clearance: None.

General Instructions

A completed Supporting Statement A must accompany each request for approval of a collection of information. The Supporting Statement must be prepared in the format described below, and must contain the information specified below. If an item is not applicable, provide a brief explanation. When the question “Does this ICR contain surveys, censuses, or employ statistical methods?” is checked “Yes,” then a Supporting Statement B must be completed. OMB reserves the right to require the submission of additional information with respect to any request for approval.

Specific Instructions

Justification

1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection.

The U.S. Geological Survey (USGS), in accordance with the Earthquake Hazards Reduction Act (National Earthquake Hazards Reduction Program (NEHRP), 42 USC 7701, is required to collect, evaluate, publish, and distribute information concerning earthquakes. Accordingly, Survey policy (Geological Survey Manual 120.1.1) requires geophysical surveys and investigations of earthquakes and aftershocks affecting the United States and its territories and offshore areas. The USGS is responsible for releasing forecasts for aftershocks following large earthquakes in the United States and abroad and it does this via forecast products, or summaries of the forecast using text, tables of numbers, graphics and maps. This collection is for information regarding how different forecast products affect people. The aim is to understand which products would be most effective for communicating the forecast.

2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection. Be specific. If this collection is a form or a questionnaire, every question needs to be justified.

The information will be used by the USGS to determine which forecast products to use to release an aftershock forecast to the public. The current products are non-visual (using a template of text and tables of numbers to summarize the forecast), which may be suboptimal for how this information is used following a major earthquake. To test the wide range of visual products that

may be developed (graphics, maps, etc.), we will conduct a survey with users of aftershock forecasts. We will recruit participants from key user groups, including emergency managers, critical infrastructure operators, civil engineers, public information officials, the media, and others. These participants will perform a series of simple tasks using different versions of our forecast products. These questions will test how well each product supports basic operations that users need to do with each product (communication goals of the forecast product). These goals include facilitating users to correctly read off the forecast information, summarize the aftershock risk for their communities and compare it to aftershock risk elsewhere. We will have multiple versions of each task (for instance, multiple cities to read off the map) in order to more rigorously test each product's effectiveness in the key communication goals. Participants will also answer questions related to their demographics and job characteristics, so that we can relate these variables with their task performance. This is to ensure that forecast products lead to high task performance across the entire population, rather than specific subgroups. Analysis of the task responses for different forecast products will inform recommendations to the USGS on which new products to use to communicate aftershock forecasts.

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also describe any consideration of using information technology to reduce burden and specifically how this collection meets GPEA requirements.

This collection will be done online to be most inclusive and increase the number (and diversity) of participants. We will use a secure and encrypted online platform to allow for anonymized survey response. This will make the collection more streamlined and efficient, which will reduce burden on participants. We will create an automated system to process the data that are collected online, which enables a large savings of USGS personnel time.

4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Item 2 above.

No other organization gathers this type of earthquake information at the national scale like we plan to in our survey. Thus, there is no similar information already available.

5. If the collection of information impacts small businesses or other small entities, describe any methods used to minimize burden.

This information does not affect small businesses or other small entities.

6. Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.

The current practice of communicating USGS aftershock forecasts uses blocks of text and tables of numbers that may be ineffective or inefficient for many users. Visual forecast products like

maps and graphics are likely to be more useful, especially following a devastating earthquake. If this collection is not conducted, the USGS will continue using suboptimal forecast products, which means that the potential life-saving power of this information will be less effectively communicated and also have less uptake by the user groups we serve.

7. Explain any special circumstances that would cause an information collection to be conducted in a manner:

- * requiring respondents to report information to the agency more often than quarterly;

Not applicable in this collection.

- * requiring respondents to prepare a written response to a collection of information in fewer than 30 days after receipt of it;

Not applicable in this collection.

- * requiring respondents to submit more than an original and two copies of any document;

Not applicable in this collection.

- * requiring respondents to retain records, other than health, medical, government contract, grant-in-aid, or tax records, for more than three years;

Not applicable in this collection.

- * in connection with a statistical survey that is not designed to produce valid and reliable results that can be generalized to the universe of study;

Not applicable in this collection.

- * requiring the use of a statistical data classification that has not been reviewed and approved by OMB;

Not applicable in this collection.

- * that includes a pledge of confidentiality that is not supported by authority established in statute or regulation, that is not supported by disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use; or

Not applicable in this collection.

- * requiring respondents to submit proprietary trade secrets, or other confidential information, unless the agency can demonstrate that it has instituted procedures to protect the information's confidentiality to the extent permitted by law.

This collection does not require proprietary, trade secret, or other confidential information not protected by agency procedures.

8. If applicable, provide a copy and identify the date and page number of publication in the Federal Register of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection prior to submission to OMB. Summarize public comments received in response to that notice and in response to the PRA statement associated with the collection over the past three years, and describe actions taken by the agency in response to

these comments. Specifically address comments received on cost and hour burden.

Describe efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every three years — even if the collection of information activity is the same as in prior periods. There may be circumstances that may preclude consultation in a specific situation. These circumstances should be explained.

The publication of our public notice in the Federal Register was on January 17, 2023 (88 FR 2636). No comments were received regarding our notice.

We have consulted with our project partners, who are leading seismologists and communication researchers in Mexico (Center for Scientific Research and Higher Education in Ensenada), El Salvador (Ministry of Environment and Natural Resources) and New Zealand (Massey University). It has been verified that no similar information has ever been collected. The survey instructions and our recordkeeping (data management) plans have also been vetted by our partners. Our plans for which data to collect and report, as well as disclosure protocols (e.g., participant anonymity) have also been discussed with these partners.

We have also done consultations with those from whom information is to be obtained. We have organized workshops with representatives of the professional groups from which we will collect data. These workshops helped us better understand their needs and use cases for aftershock forecast information and products. As such, we are confident that our survey design and analysis plan will serve the needs expressed by these representatives.

9. Explain any decision to provide any payment or gift to respondents, other than remuneration of contractors or grantees.

No payments or gifts are given to respondents.

10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.

Responses to our survey will be held confidential and not shared with others outside the research team, except in aggregated and anonymized forms in our research outputs. The records for this collection are maintained in the Privacy Act System of Records identified as Earthquake Hazards Program Earthquake Information (Interior/USGS-2), published at 74 FR 34033 (July 14, 2009).

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered

private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.

The collection does not include sensitive or private questions.

12. Provide estimates of the hour burden of the collection of information. The statement should:

- * Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Unless directed to do so, agencies should not conduct special surveys to obtain information on which to base hour burden estimates. Consultation with a sample (fewer than 10) of potential respondents is desirable. If the hour burden on respondents is expected to vary widely because of differences in activity, size, or complexity, show the range of estimated hour burden, and explain the reasons for the variance. Generally, estimates should not include burden hours for customary and usual business practices.
- * If this request for approval covers more than one form, provide separate hour burden estimates for each form and aggregate the hour burdens.
- * Provide estimates of annualized cost to respondents for the hour burdens for collections of information, identifying and using appropriate wage rate categories. The cost of contracting out or paying outside parties for information collection activities should not be included here.

The survey will be completed one time by each participant. We estimate it will take an average of 15 minutes for the respondent to supply the requested information. This includes time needed to read and understand the instructions, questions and answer choices. We intend for there to be around 900 responses, to ensure power of the statistical tests run on the survey data, to allow for statistically valid comparisons between our target professional groups. This results in a total hour burden of 300 hours. We estimate the dollar value of the annual burden hours to be \$7,380 (see Table 1).

We are using the Bureau of Labor Statistics *Employer Costs for Employee Compensation*, USDL-23-1305, published on 6/16/2023, to determine our dollar value for burden hours. The value used is \$32.80, the median wage for public (civilian) workers.

Table 1: Respondent burden

Activity	Number of Responses	Minute per response	Burden Hours	Dollar Value for Burden Hr
Participant reads instructions	400	3	20	\$656.
Participant completes survey	400	12	80	\$2,624.
TOTAL				\$3,280.

13. Provide an estimate of the total annual non-hour cost burden to respondents or recordkeepers resulting from the collection of information. (Do not include the cost of any hour burden already reflected in item 12.)

- * The cost estimate should be split into two components: (a) a total capital and start-up cost

component (annualized over its expected useful life) and (b) a total operation and maintenance and purchase of services component. The estimates should take into account costs associated with generating, maintaining, and disclosing or providing the information (including filing fees paid for form processing). Include descriptions of methods used to estimate major cost factors including system and technology acquisition, expected useful life of capital equipment, the discount rate(s), and the time period over which costs will be incurred. Capital and start-up costs include, among other items, preparations for collecting information such as purchasing computers and software; monitoring, sampling, drilling and testing equipment; and record storage facilities.

- * If cost estimates are expected to vary widely, agencies should present ranges of cost burdens and explain the reasons for the variance. The cost of purchasing or contracting out information collection services should be a part of this cost burden estimate. In developing cost burden estimates, agencies may consult with a sample of respondents (fewer than 10), utilize the 60-day pre-OMB submission public comment process and use existing economic or regulatory impact analysis associated with the rulemaking containing the information collection, as appropriate.
- * Generally, estimates should not include purchases of equipment or services, or portions thereof, made: (1) prior to October 1, 1995, (2) to achieve regulatory compliance with requirements not associated with the information collection, (3) for reasons other than to provide information or keep records for the government, or (4) as part of customary and usual business or private practices.

There is no non-hour cost burden to the respondents under this collection.

14. Provide estimates of annualized cost to the Federal government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), and any other expense that would not have been incurred without this collection of information.

We anticipate 250 working hours across our team for this information collection. At roughly \$50/hour (GS-12 hourly wage), we estimate a total cost of \$7,500.00 to the Federal government.

15. Explain the reasons for any program changes or adjustments in hour or cost burden.

This is a new collection.

16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.

We will summarize and analyze the survey responses prior to their publication. We will use standard statistical tests to compare task responses under different forecast products. We will also use such statistical tests to understand if task responses varied by different profession-based or demographic subgroups and if so, for which forecast graphics. We will repeat this procedure for all the different tasks in the survey.

The collection will take place in the first half of 2024 and the data analysis will take place in the second half of 2024. Publications will be written and submitted to scientific journals in the first half of 2025.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be inappropriate.

We do not seek approval to not display the expiration date for OMB approval of the information collection.

18. Explain each exception to the topics of the certification statement identified in "Certification for Paperwork Reduction Act Submissions."

There are no exceptions to the certification statement.