Supporting Statement B

Current & Future Landsat User Requirements

OMB Control Number 1028-0123

Collections of Information Employing Statistical Methods

The agency should be prepared to justify its decision not to use statistical methods in any case where such methods might reduce burden or improve accuracy of results. When the question "Does this ICR contain surveys, censuses, or employ statistical methods?" is checked "Yes," the following documentation should be included in Supporting Statement B to the extent that it applies to the methods proposed:

1. **Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g., establishments, State and local government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.**

The potential respondent universe or population consists of Landsat users that have accessed imagery using cloud service providers in the last 12 months. The total estimated population is 300,000 (table 1).

Table 1. Population and samples sizes for new Landsat users for full survey

Landsat users	Total estimated population	Expected undeliverable emails	Total potential respondents
New Landsat users	300,000	60,000	240,000

Based on experience with other samples of known populations, we expect a 20% undeliverable rate for users, reducing the number of potential respondents to 240,000 (table 1). This undeliverable rate is expected from previous Landsat studies (see below). Based on the response rate from the 2018 survey, we are assuming a 10% response rate, yielding 24,000 respondents. Though this response rate is relatively low, the sample obtained is still far greater than that needed to provide sufficient statistical power to generalize to the population of new users and to allow for comparisons between various user groups, such as different satellite application users. Additionally, we will adhere to follow-up procedures for web surveys outlined by the Total

Design Method (Dillman, Smythe, and Christian, 2014) which has been shown to increase response rates.

1. U.S. Department of Interior. U.S. Geological Survey. Users, Uses, and Value of Landsat Satellite Imagery – Results from the 2012 Survey of Users, by Miller, HM; Richardson L; Koontz, SR; Loomis J; Koontz L. Open-File Report 2013-1269, U.S. Geological Survey. Fort Collins, Colorado, 2013.
2. U.S. Department of Interior. U.S. Geological Survey. Users, Uses, and Value of Landsat Satellite Imagery – Results from the 2012 Survey of Users, by Straub, C.L., Koontz, S.R., and Loomis, J.B., 2019, Economic valuation of Landsat imagery: U.S. Geological Survey Open-File Report 2019–1112, 13 p., https://doi.org/10.3133/ofr20191112.
3. U.S. Department of Interior. U.S. Geological Survey. Users, Uses, and Value of Landsat Satellite Imagery – Results from the 2018 Survey of Users, by Straub, C.L., Koontz, S.R., and Loomis, J.B., 2019, Economic valuation of Landsat imagery: U.S. Geological Survey Open-File Report 2019–1112, 13 p., https://doi.org/10.3133/ofr20191112.

2. Describe the procedures for the collection of information including:
   * Statistical methodology for stratification and sample selection,
   * Estimation procedure,
   * Degree of accuracy needed for the purpose described in the justification,
   * Unusual problems requiring specialized sampling procedures, and
   * Any use of periodic (less frequent than annual) data collection cycles to reduce burden.

The sample will be drawn from the population of Landsat users that access Landsat through cloud service platforms.

The results of the survey will be generalized to the population of Landsat users that access Landsat through cloud service platforms. The non-response survey will be used to ensure that the respondents accurately represent the population. A 10% response rate to the full survey will provide a large enough number of respondents to result in a sufficient degree of accuracy to represent this population Landsat users. The response rate is similar to online surveys expected response rate.

There are no unusual problems with the sampling procedures for this collection and no periodic data collection will occur.

3. Describe methods to maximize response rates and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.

Using the web as an alternative to other survey modes such as mail or telephone is becoming

increasingly accepted (Couper, 2000). Web-based surveys are often used as a strategy to decrease costs, increase the speed of data collection, and increase response rates with the hope of decreasing the amount of non-response error (Dillman, Smythe, and Christian, 2014; Schaefer and Dillman, 1998). To maximize the response rate, Dillman's methods for web-based surveys will be followed with some modifications. Four emails will be sent, all of which will contain a link to the survey. Email reminders will be sent out 4, 8, and 16 days later to all non-respondents, excluding those who request to be removed from the list. We feel that due to the highly technical nature of the respondents, they will be more likely to respond to a web version versus a paper survey option. We predict that the response rate of 10% will be met. Unless the response rate is above 70% for each sample, we will employ intensive methods (described by Dillman) to conduct a follow-up survey of non-respondents for both national and international user samples. The non-respondent survey will be e-mailed to all of the non-respondents who have not responded to the web survey.

We will collect and analyze information from users who ask to be removed from the list. We will use the following question/response options:

"Please share why you wish to be removed from this survey."
- ☐ I know longer use Landsat
- ☐ Bad timing, otherwise engaged
- ☐ Not interested
- ☐ Do not know subject, too difficult
- ☐ Waste of time
- ☐ Never do surveys
- ☐ Other (please specify) _____

4. **Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of tests may be submitted for approval separately or in combination with the main collection of information.**

The survey will be pre-tested with Federal government employees who use Landsat to ensure the questions are clear and that there are no issues with the online programming.

5. **Provide the names and telephone numbers of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.**

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