Supporting Statement B

Current & Future Landsat User Requirements

OMB Control Number 1028-NEW

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 all users of Landsat imagery who have downloaded the imagery from the USGS Earth Resources and Observation Science (EROS) Center in the last 12 months. All users are required to enter an email address when they initially register with EROS so contact information is available for all the users. The current number of people who have downloaded imagery is 129,229 (table 1). There are 18,264 U.S. users (of which 1,248 are U.S. Federal government employees not subject to OMB clearance) and 110,965 international users in the population. There are a total of 127,981 non-Federal users in the population.

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

Landsat users	Total EROS population	U.S. Federal government employees	Total non-Federal EROS population
U.S.	18,264	1,248	17,016
International	110,965	NA	110,965
Total	**129,229**	**1,248**	**127,981**

All of the U.S. users in the EROS population will be contacted via email and asked to respond to the survey, since data from EROS shows U.S. users download the majority of Landsat imagery

(Miller et al., 2013). However, contacting all international users is not feasible, given time and logistical limitations. A random sample of 18,000 international users (to approximate the total number of U.S. users) will be drawn from the population and sent the survey.

The response rate for a similar 2012 survey was 30% (Miller et al., 2013), which is comparable to typical response rates for online surveys reported in several meta-analyses (for example, Lozar Manfreda et al., 2008; Sheehan, 2001; Shih and Fan, 2008). Because the individuals in the sample are highly engaged in the survey topic, we anticipate a similar response rate for this survey. 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.

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 EROS users and will be stratified by citizenship. A census will be taken of all U.S. users while a random sample of international users will be drawn due to their large numbers. All international users will be assigned a number and a random number generator will be used to select 18,000 users to be sent the survey.

The results of the survey will be generalized to the population of EROS users. The non-response survey will be used to ensure that the respondents accurately represent the population. A 30% 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 of EROS users of Landsat imagery.

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. In this case we have a list of confirmed users of Landsat imagery from EROS, so we consider this to be a very attentive audience. 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 30% 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 were clear and that there were 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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