**Idaho State University Data Management Plan**

This data management plan (DMP) describes the practices and procedures currently in place along with those planned for implementation in the future. Where guidance exists and is available, researchers at ISU are required to follow state and federal laws regarding data management (e.g., data retention and deletion). Communicating these requirements is typically undertaken by each department or in some cases by broader coordinating bodies across ISU. For example, ISU’s Geospatial Coordinating Committee (GsCC) is comprised of representatives from academic and research units at ISU that maintain various levels of involvement in the geotechnologies and geographic information science with the primary function of the committee focused on coordinating and communicating information related to teaching, research, and the use of geotechnologies and geospatial science at ISU. The GsCC communicates data management practices and procedures and recommends policy to ISU administration. Other similar coordinating bodies exist at ISU including the Cyberinfrastructure Working Group (CIWG).

Throughout the course of this study, the investigators will generate a large collection of data specifically focused on geographic information science, ecology, and the environment. Within each specific laboratory, investigators follow state, university, and departmental policies regarding data management. Since this project will use the capabilities of ISU’s Research Data Center (RDC), investigators are required to comply with the RDC’s data management plan.

**Data Integrity, Retention, and Sharing**

The RDC has been designed to provide both physical and network security for the servers and data they contain. Data integrity is assured through the use of RAID 5, hot-swappable hard drives and off-site archiving (e.g., the GIS TReC maintains a large archive server at the College of Business building on the ISU campus in Pocatello and ISU has invested in encrypted BOX (cloud) archiving in addition to the on-site resource). The RDC servers are hyper-V enabled and in composite contain nearly 1 TB of RAM along with over 100 TB or hard drive space. This storage space is not designed for long term storage/archiving but rather computational space with over 21 TB of solid state drives (SSD) made available for more rapid I/O performance. All sensitive data are required to be stored only on virtual machines (VM’s) within the RDC’s protected environment (PE) sector. Metadata documentation follows the standard most accepted within the investigator’s field of study. For example, in the field of geographic information science (GIS) investigator Weber will follow the ISO 19113 or Federal Geographic Data Committee (FGDC) metadata standard. Geospatial data in the state of Idaho requires perpetual retention save for those data that originate from other sources (e.g., raw Landsat imagery does not require perpetual retention as these data originate from USGS EROS data center, however products derived from those raw data sources do require perpetual retention). Similarly, policies for data access and sharing follow those set by the department or by state and federal laws that may supersede those policies. For example, the data sharing policy used at the GIS TReC (<http://giscenter.isu.edu/GsCC/PDF/DataSharingPolicy.pdf>) was developed and approved in 2011. This data sharing policy describes purpose, defines data types, data categories, metadata, custodianship, repositories, data access, and data usage and is currently in use.

Within the RDC, the data management plan will follow that used by the entity operating each VM. This may be superseded by university policies, or state/federal rules/laws. If no data management plan exists, use of the RDC will be restricted until a complete data management plan has been submitted and approved[[1]](#footnote-1).

**Intellectual Property, Privacy, and Confidentiality**

Intellectual property policies follow Idaho State University policy #7010 (<http://www2.isu.edu/policy/7000/7010-Research-Intellectual-Property.pdf>) in all cases regardless of whether the data resides on computers in an investigators laboratory or within the RDC. Within the RDC’s Protected Environment (PE) sector, privacy policy will be applicable and is currently governed under ISU policy #10100 (<http://www2.isu.edu/policy/10000/10100-Use-and-Disclosure-of-PHI-for-Tx-Pymt-Op.pdf>). Similarly, confidentiality and data integrity is governed by ISU policy #10410 (<http://www2.isu.edu/policy/10000/10410-Integrity-of-Information.pdf>).

**Data Archiving**

ISU’s RDC is not designed to host long-term data storage or provide data archiving support. However, the RDC will be able to host data storage (up to the allowed storage allocation as agreed upon by the Research Systems Administrator and each investigator as documented in the RDC Use Agreement) for a research project throughout the duration of that project. At the end of the project period, data will need to be transferred from the VM to a long-term storage archive like the BOX cloud solution already in use at ISU. Transfer of these data will be allowed a six-month grace period before the VM is recycled to another investigator/research project.

Investigators can also opt to move a project specific server or cluster into the RDC facility. This will provide the investigator with both physical and cyber security along with ample power and cooling capabilities. Data storage limits and end-of-study archiving procedures will not affect researchers moving their own computers into the RDC however data management plan requirements will still be enforced as described above.

Regardless of location, long-term data archiving must follow ISU policies, and state/federal laws. Guidance regarding these requirements are provided by ISU’s Records Manager (cf. <http://www2.isu.edu/infomgmt/>).

**Roles and Responsibilities**

The PI, Weber is ultimately responsible for all data produced as a direct result of this project. Each investigator is responsible for their project-specific data. In the event one of the key personnel departs ISU prior to the close of the grant, that person’s roles and responsibilities will be transferred to the person’s replacement or interim replacement at the discretion of the PI, the Vice President for Research or Department Chair as applicable. Following the close of the grant, data created as part of the research project will be stored both locally at ISU on external drives and on the BOX cloud archiving solution used by ISU.

1. ISU’s Research Data Center has created an oversight committee that is developing policies on VM procedures, research use agreements, data retention/deletion, data sharing, and other rights and [↑](#footnote-ref-1)