Collecting Geophysical Data from Deception Island, Antarctica

In December 2005, 30 researchers from 12 institutions in 5 different countries arrived on Deception Island, a volcanic island located off the coast of Antarctica. Their goal was to collect data about the island's seismic activity and structure of Deception Island. Researchers in the US were funded by the NSF under the Antarctic Astrophysics and Geospace Sciences directorate. Each researcher arrived on the island with institution issued laptops running the most recent Mac OS, which were approved to run on the United States Antarctic Program (USAP) network. Cloud storage services were accessible from 4 USAP station kiosks, but upload speeds varied based on time and location.

Upon arrival, researchers surveyed the entire island and identified locations for 170 seismic stations and 4 residential camps. Locations were recorded as GPS coordinates in a paper handbook where researchers could also find guidance on storage requirements, file naming standards, and individual researchers responsibilities. Over the next 60 days, they collected data which was organized into 5 sets:

        a.   Bathymetry data (.txt, .jpg, .asc, .mat, and .grd files)

        b.   Magnetic data (.mag and .xyz files)

        c.   Gravimetry data (.grv and .txt)

        d.   Models (.txt, .mat, and .dat)

        e.   Seismology (SEGY)

All data was copied onto one of ten 2TB portable Seagate external harddrives. Files adhered to a standard naming convention: YYYYMMDD_DDMMSSS_INSTYPE. Once the researchers returned to their home institutions, raw data were backed up on local servers and uploaded to cloud storage for collaboration during the computation process. Following data cleaning and computation, researchers deposited all data with the Australian Antarctic Data Center, which assigns each dataset with a citation and DOI, archives the datasets for future use, and makes the data discoverable through search engines. Researchers published several articles from this data, including a data article with Nature's *Scientific Data*.

Excerpted/adapted from Ibáñez, J. M., Díaz-Moreno, A., Prudencio, J., Zandomeneghi, D., Wilcock, W., Barclay, A., ... & Alguacil, G. (2017). Database of multi-parametric geophysical data from the TOMO-DEC experiment on Deception Island, Antarctica. Scientific data, 4, 17012

Activity: Select all attributes that apply to the above case. Make notes of anything you would change.

Before Research Begins	During Research/Data Collection	After Research Ends
❏ Data was saved in an open file format ❏ All machines on which data would be saved, cleaned, and analyzed were identified ❏ Roles and responsibilities amongst researchers were defined and documented. Notes:	❏ Researchers had 3 copies of data ❏ On 2 types of storage ❏ 1 type of storage was offsite or in the cloud ❏ File naming convention followed Notes:	❏ Funder requires data be made public ❏ Publisher requires data be deposited in a repository ❏ Data and other outputs were assigned a DOI and a citation Notes: