ARCHIVING DIRECTLY FROM THE FIELD

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Introduction

Although archiving from the field can take valuable field time away from the researcher, it need not be time-consuming and the alternative could be disastrous. In fieldwork situations, one's notes and equipment are generally exposed to much harsher conditions than in the office. On a long field trip, the researcher will accumulate large amounts of data and want to keep them safe for later analyses. Archiving from the field gives the researcher the security to go out and conduct more field work.

The recommendations discussed here are based on the author's own fieldwork experience, which was conducted over the course of a year in the far northern Philippines, with speakers of Dupaningan Agta. The equipment was purchased in advance with a more remote location in mind than the one the researcher actually encountered. Although many speakers of Dupaningan Agta live in isolated communities without roads, accessible only by long boat rides and/or long hikes, the community chosen by the author was only an hour (by a combination of dirt road and walking) from the main highway and a small town. The fieldwork was conducted for a grammar and dictionary of Dupaningan Agta, a threatened language (beginning to lose child speakers) spoken by a group of semi-nomadic hunter-gatherers. The data was submitted to the Pacific and Regional Archive for Digital Sources in Endangered Cultures (PARADISEC) in Australia.

Power

Solar

The cumbersome solar options usually presented to fieldworkers (see, for example, Colborn, 1999) are more suited for long-term setups (over two years) in a single location than for the shorter fieldwork periods linguists usually face. I took a single, foldable solar panel into the field. Rated at 55 watts, it cost US $909 when purchased in 2005 (see Figure 1 for details of equipment discussed in this paper). The solar panel folds down into 8" x
11" x 2" and weighs less than four pounds. Traditional, rigid solar panels are much cheaper than such foldable or rollable models, but the flexible models are much more durable and portable. Rigid solar panels often stop working when in partial shade or when partially damaged (Colborn, 1999). In contrast, flexible models, designed originally for military use, work even if a part of the panel has been damaged. Moreover, since rigid models are heavy and awkward, they are only an option for someone planning to set up a long-term stable living situation in the field.

<table>
<thead>
<tr>
<th>Item</th>
<th>Brand</th>
<th>Make/Model</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar Panels</td>
<td>Global Solar</td>
<td>P3-55 (55 watts, 12 volts)</td>
<td>$909</td>
</tr>
<tr>
<td>Laptop¹ (including peripheries)</td>
<td>Toshiba</td>
<td>Satellite M50</td>
<td>$2,504</td>
</tr>
<tr>
<td>DC Auto adapter</td>
<td></td>
<td>For Satellite M50</td>
<td>$66</td>
</tr>
<tr>
<td>Video camera, case &amp; DC adapter</td>
<td>Sony</td>
<td>DCR-HC42 MiniDV</td>
<td>$566</td>
</tr>
<tr>
<td>Audio recording device &amp; 2 1GB flash cards</td>
<td>Edirol</td>
<td>R-1</td>
<td>$589</td>
</tr>
<tr>
<td>Digital still camera, case, memory, extended warranty</td>
<td>Nikon</td>
<td>Coolpix 7600</td>
<td>$505</td>
</tr>
</tbody>
</table>

Figure 1: Equipment and costs (in 2005 US$).

Unfortunately, at 2.8 amps, the solar panel does not produce enough electricity at once to charge the computer. The electricity must instead be gathered and stored in a location where it can be dispersed at a higher amperage. Thus, it was necessary to purchase a battery to accompany the solar panels. The battery stores the electricity and re-dispenses it to the computer in a format the computer can use. The solar panels should hook directly into the battery (see Figure 2 below) with a pair of alligator clips (little clamps of different colours for positive and negative). These clips should come with the solar panels, but may have to be purchased as an additional accessory at the time of the purchase of the solar panels.
Battery
For reasons explained above, a battery will be necessary to accompany the solar panels. I recommend a motorcycle battery for most field situations. Motorcycle batteries are smaller and more lightweight than car batteries, and are thus more portable. On the other hand, a fully charged motorcycle battery only ran my laptop computer for a few hours. The less power the battery has, the fewer amps it outputs, and even before the battery has fully discharged, it is no longer able to charge the computer. The battery will continue to charge a smaller device, such as a cell phone, and an electric light will continue to run until the battery is completely discharged.

The 55 watt panels could charge at least two motorcycle batteries on a sunny day, so that if a researcher did not expect to transport the battery frequently after arriving in the field site, it might be worth the effort and expense to get a larger battery. A larger battery provides insurance against cloudy and rainy days, on which I got virtually no charge from the panels. It should be noted that car, truck and motorcycle batteries cannot be taken on commercial airplanes and must be purchased in-country. Vehicle batteries are widely available, but may need to be purchased in larger cities and transported to the field site.

Deep-cycle batteries are advisable for stays longer than two years. They are more ideally suited for being completely drained and recharged, whereas vehicle batteries are designed to be drained by only 20% of their charge before being recharged (Colborn, 1999). The deep draining of a vehicle battery shortens its life, but this is not a concern for relatively short-term fieldwork operations. Moreover, deep cycle batteries are less
widely available and may be more expensive than vehicle batteries. The motorcycle battery I used was purchased for US$16, and was the highest quality (and most expensive) battery available in the field location. In the community where I worked, many of the local people had motorcycle batteries identical to mine. They would charge them in town for a small fee, drain them of every bit of power using electric lights or radios, and never cleaned them or changed the fluid as recommended. Despite this harsh treatment, their batteries lasted for several years. In other words, a high quality motorcycle battery is quite durable and fairly inexpensive.

Adaptors

The battery hooked directly into my computer and other equipment via 12volt 'automotive' adaptors, which are simply car cigarette lighter adaptors. The setup described here requires such adaptors for everything being charged in the field. For a cell phone, this is fairly easy to find. I was able to find one for my laptop computer on the internet, but at US$66, this was a fairly expensive addition. The tricky part about the adaptors, however, was the actual cigarette lighter itself. Cigarette lighters (no longer attached to their vehicles) may be difficult to find. They are often purchasable as an accessory with the solar panels, but the wire does not usually hook to a set of alligator clips, as required for the setup described here. Thus, the researcher must jerry-rig the set up by splicing two wires. This is a simple task for someone with a bit of electrical experience.

Other equipment?

Inverters and controllers are not necessary in this solar setup. An inverter changes the DC electricity output by the battery into AC electricity used by most electrical devices (Colborn, 1999). This is essentially the function performed by the automotive adaptors discussed above. Since an inverter is a relatively heavier device than the automotive adaptors, the adaptors are ideal for lightweight systems. On the other hand, adding an inverter to the system is simpler, requiring fewer extras (such as automotive adaptors for each device) and fewer wires and is thus advisable for more permanent systems.

A charge controller is 'a device that regulates the amount of charge your batteries get from the solar-electric panels' (Colborn, 1999, footnote 3). Overcharging the battery can damage the battery, but the small amount of long-term damage is outweighed by the price (see discussion on batteries above). Moreover, the charge controller prevents charge from leaking
backwards from the battery through the solar panels while the solar panels 
are not charging (for example, at night). While this backwards leakage is 
not a major loss, it can be corrected by disconnecting the panels when 
they are not actively charging the battery.

An inexpensive, lightweight addition to the solar system is a multimeter, 
which tests voltage. It calculates how many volts the panels are producing 
and how much charge the battery has. These hand-held devices start 
around US$10 and are useful for assessing problems or monitoring the 
activity of the solar setup.

Other sources of power
Although my field site itself did not have electricity, there was electricity 
relatively nearby where the motorcycle battery could be charged for a 
nominal fee. This ended up being my primary source of electricity in the 
field because it was much more reliable than the sun. AA batteries\(^2\) and 
gas lamps were also important alternative sources of energy during my 
fieldwork (my digital camera and audio recorder both ran on AA 
batteries).

Equipment

Digitisation
The transfer of audio and still pictures to the laptop and onto a DVD is 
straightforward and relatively quick. Moreover, because these files are 
digital to begin with (assuming the use of a digital camera and a digital 
audio recorder), the transfer is lossless. That is, the original on the device 
(camera or recorder) is identical to the copy on the computer.

On the other hand, even digital video cameras record first in tape-based 
formats (small cassette tapes in the case of my miniDV camera). 
Transferred video is of lower quality than the tape originals, and, no 
archival standard for digital video exists today (E-MELD, 2005a). The 
ideal way to handle video, therefore, is to keep the original tapes. But 
researchers facing a long fieldwork period will want to transfer their video 
for archival safe-keeping, whether or not they are also able to retain all the 
original tapes.

Transferring video is a long process that requires a large hard drive. 
Transferring the video to the laptop (via software provided with the 
camera) usually took twice as long as the actual video segment itself. This
part of the process also requires quite a bit of spare memory, as the files are stored in the uncompressed AVI format. E-MELD (2005b) calculates that one hour of video in AVI format is over 12GB. In my own experience, I found that the files could be much larger, an hour of video reaching 20GB.

Once the video was transferred onto the laptop, I used a program that came with Windows (interVideo WinDVD Creator) to convert the video to MPEG-2, the lowest acceptable archival standard (E-MELD, 2006). This program is also a simple editor, so I could easily edit out unwanted segments of video. This is the part of the process where the video loses quality, so if audio is to be extracted from the video, it should be done before the conversion to MPEG. Further, converting the video to MPEG took almost as long as the length of the video, so that the entire transfer process took almost three times the length of the video segment. For this reason, it is best to transfer video when grid power is available, in my case, when the data was sent from the post office.

**DVD burner**

In order to archive from the field, the researcher also requires the means to create and send media to the archive. Perhaps the single most important piece of equipment is the field worker's laptop with a DVD burner. Since digital audio and video files are quite large, the only practical means of sending such files is by postal mail in the form of DVDs. The files cannot be sent over the internet due to their size, and in any case most field situations lack high-speed internet, if there is internet available at all. Moreover, CDs are too small to hold video or even large audio files. A one-hour recording of 16-bit 44.1kHz stereo audio (the lowest acceptable standard, the last time I checked) is over 600 MB. That, in itself, would take a single CD. An hour of video in MPEG-2 format can easily reach 4GB, almost an entire DVD. This means that for the field worker intending to archive from the field, a DVD burner is indispensable. Although it adds weight to the laptop and is not always a standard feature on laptops, it cannot be omitted.

Burning DVDs from the field will most likely also mean that a supply of blank DVDs will need to be purchased before going into the field, as they are unlikely to be available in the remote field locations. They may, however, be available in larger cities; I was able to find blank DVDs in both the provincial capital a few hours from my field site and in the national capital (Manila, Philippines).
It should also go without saying that the computer must have a very large hard drive to accommodate the amount of data that will be recorded. The size needed will depend on the amount of audio or video data to be recorded, but the researcher may want to consider buying an additional external hard drive. These have come down in price and size in recent years and are now relatively small and affordable (under US$150 for an 80GB drive the size of a cheque book).

Metadata

Since fieldwork time is best spent gathering data, one wants to minimise time spent in data management. In order to maximise research time, a simple metadata set is all that need accompany the digitised files sent to the archive. I began my field period by typing up all the data and sending text files with actual data and metadata along with the audio, video and picture files. I would include the data in the vernacular and a simple free translation, often also including the regional language data that was used in elicitation (see Figure 3 below for a sample).

Figure 3: An example file submitted to archive.
At no point during fieldwork, however, did I attempt to do interlinear glossing or time-aligned transcriptions. These are time-consuming steps that presuppose analysis of the language (see Himmelmann, 1998 and Lehmann, 1998 on the need to document languages with audio, video and texts as apart from and in advance of the description). Since neither interlinear glossing nor time-alignment were included in the data sent to the archive, simple text files were ideal for encoding the data.

By the end of my trip, I was sending only the metadata in text files along with the other files. The metadata included in these files was quite basic, and will be expanded and refined at a later date, as when more final copies of the data are submitted to the archive (see Figure 3 above for an example). For the data archived from the field, I included my own name, which would be both Creator and Contributor under the OLAC standards (Aristar-Dry, 2004); the names, genders, approximate ages, and roles of my consultants (for example, Esther Baclig, female, middle-aged, storyteller; Ronald Agcaoili, male, 36, assistant in transcribing story); the type of data (story, sentences, wordlist, song, and so forth); the subject language (Dupaningan Agta); the elicitation language (not relevant to a story, but usually Ilokano), location where data was recorded (including GPS coordinates), the date of the recording, notes about transcription (for example, 'E is a mid, front, lax vowel'), and the names of associated files, if any (that is, audio, video or photograph files).

Audio files were also associated by naming convention. The names of all files submitted to the archive began with LR1, a unique identifier assigned by the archive (after my initials, Laura Robinson). The next section of the file name was the date, MMDDYY (a format most comfortable to me, as I was the one who chose the convention), and the third part of the name listed the number of the file (01, 02, if more than one file for a given date, or simply A if there was only one file for that date). For example, LR1-031606-03.txt was the third file created for March 16, 2006, and it is associated with LR1-031606-03.wav, the audio file. There are many ways of naming files, but the best naming convention is one that is easy for the researcher and gives each file a unique name.

Data
There is another question not addressed above—what about the notes themselves? What about the written data? Although most researchers and
most field situations do not allow for all the data to be typed up while in the field—this is simply too time-consuming—researchers are perhaps more concerned for their written notes than for the audio, video, or picture files. Although it may be possible to recreate one's written notes from an audio file, this is far from desirable. One possible solution to this dilemma is to scan one's written notes into the computer, and present them to the archive in a PDF or other compatible format for safe-keeping. This way, researchers can look back on their own written notes should the originals happen to fly off the edge of a cliff on a windy day. Of course, this solution assumes the availability of a scanner, which is far from certain, but may be present in small-town internet cafes.

The researcher should keep in mind that not everything submitted to the archive need be made public, at least not right away. The archive should be willing to keep one's submissions private until such a time as they are published, and it is perfectly permissible to send copies of one's works in progress for safe-keeping. This is, indeed, probably a wise decision when actively producing a scholarly work while distant from one's office.

Conclusion

When a researcher intends to spend a long period in the field, archiving from the field guarantees the safety of the data. A simple solar setup will provide the needed electricity, and a DVD burner provides the means to create media to send to the archive. What is sent from the field, especially the transcription and the metadata, is not immutable, and the researcher should expect to revise it after the term of the fieldwork. What is important, however, is that the data is secured from the hazards of fieldwork.

Endnotes

1 My laptop details: (Custom) 100GB hard drive, 2GB RAM, DVD burner, long-life battery.
2 Researchers should be cautious, however, because many third world AA batteries are of low quality.

References


