

Tips for using SD cards

Occasionally there are whole batches of SDHC / SDXC cards that show defects and fail sooner or later. If necessary, these SD cards can be sorted out before they are used in the batcorder. Here are a few tips.

25.01.2021

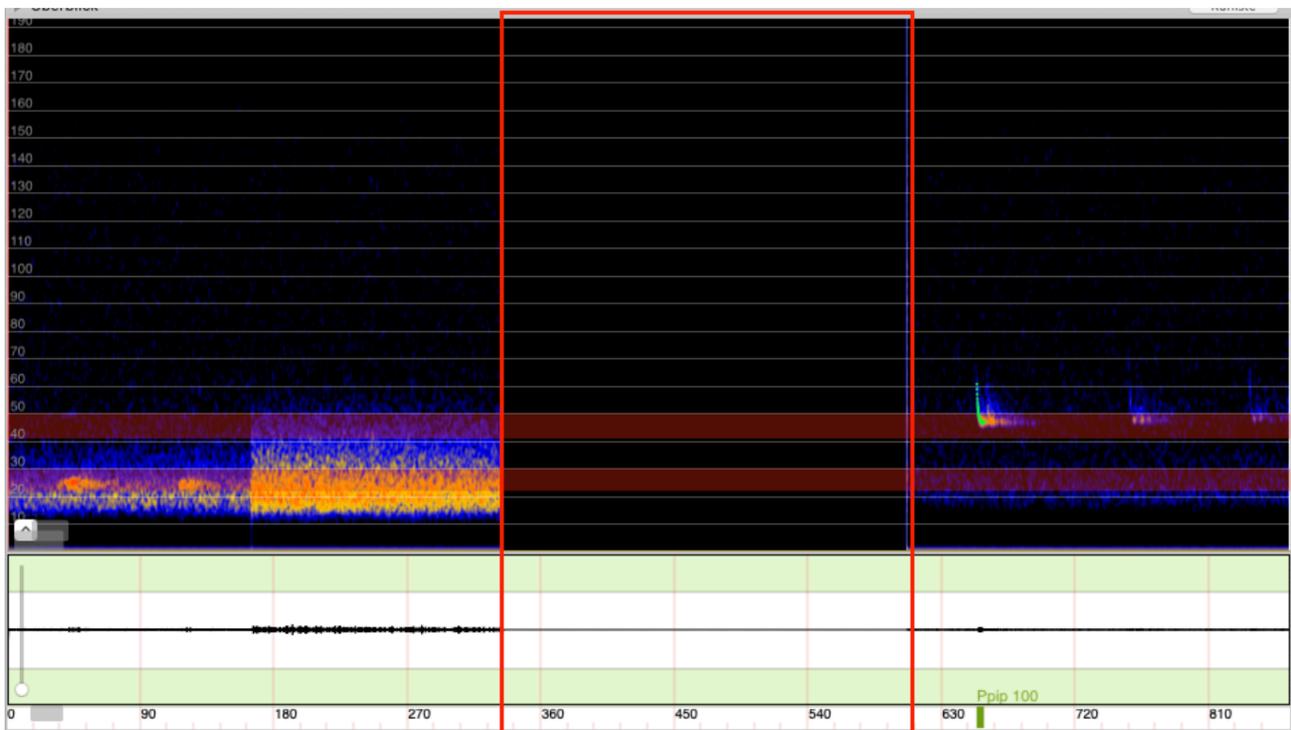
The use of batcorders for monitoring over several weeks or months has increased in recent years. The periodic status reports via SMS provide a daily function control and allow a prompt reaction to errors. While some sites are easily accessible, there are also many monitoring sites that cannot be visited regularly or even only at the end of the season. For example, in the increasing off-shore monitoring locations, even the status SMS is mostly missing, as there is no mobile network on the open sea. Thus, malfunctions or failures at the batcorder system can only be detected at the end of the monitoring. Typically, these are SD card errors, which usually mean annoying data loss.

Unfortunately, fake SD cards with false capacity information or fake manufacturer stickers are not uncommon on the market, more often at large online retailers but sometimes also at regular retailers. It is often possible to detect and sort out these defective cards before they are used in the batcorder.

In this document you will find a few tips and advices which can help to minimize downtime of the batcorder system caused by defective SD cards.

However, the software tools and workflows described here cannot be used to guarantee the functionality of SD cards

with 100% certainty. Even SD cards that have been tested and rated as good can fail.



1. Always use new SD cards

We recommend always using new SD cards for long-term monitorings. Archive used cards at the end of the season and do not reuse them in another long-term monitoring. For repeated use in single nights, do not delete the card between each use, but use the entire card capacity if possible. After the end of the first season, you should also not re-use such SD cards. In this way, you avoid errors caused by aging of the SD cards, especially under permanently changing environmental conditions.

Possible errors in the audio data can also be avoided in this way. In rare cases there are cards that show read/write errors in the logfile and mix single areas with old data in the recordings. As a result, it is no longer possible to identify with certainty from the recording which bat species actually

called. This effect was first discovered in 2020 on three different cards with read/write errors. The sonogram above shows the effect.

Therefore, if you reuse a card for special reasons, make sure that the entire contents of the SD card are overwritten with "zeros". This can usually be done on the computer using the formatting functions of the operating system.

2. Testing the SD card in the computer

New cards should be tested by a simple read/write test before use. To do this, the card must be written with defined data and the written data afterwards checked. There are various free software tools for this purpose. Mostly the Windows program **h2testw**¹ is used, which detects errors as well as wrong capacity specifications.

¹ [https://3ds.hacks.guide/h2testw-\(windows\).html](https://3ds.hacks.guide/h2testw-(windows).html)

Besides there is the tool **F3XSwift**² for the Mac we created based on **f3write/f3read**³.

3. Activate write protection of the card

Please activate the write protection of the card when using the SD cards in the batcorder subsequent to this read/write test. The batcorder itself "ignores" this write protection, which means that you can delete as well as format the SD card in the batcorder and the batcorder itself can also write to the card. Further information can also be found in the detailed operating instructions of the individual batcorder models (<https://ecoobs.com/download-en/>).

The main advantage of using the write protection is that when saving or importing the data to your computer (Mac or Windows), the operating system cannot write "unnecessary" information to the SD card, which can lead to problems later when using the SD card in the batcorder.

4. Testing the SD card in the batcorder

After the SD card test we recommend a test setup of the complete batcorder system in the office before using it in the field. Ideally, all batcorder components used later in the field should be run together. This test setup should then run for at least several days. You can then regularly generate recordings, for example, by jingling keys. This will allow

you to find any errors in the settings or in the connection from the single components.

5. Speed rating of SD cards

The SDHC or SDXC cards used with the batcorder system do not require special write & read speed ratings. These usually start with Class 2, Class 4, Class 6. These speed ratings are absolutely sufficient for operation in the batcorder as well. However, SDXC cards with larger storage capacities in particular are often only easily available with in faster speed ratings, which are then often labeled V 10, V30, V60 or UHS-I, UHS-II, UHS-III. Experience has shown that you should try to buy the "slowest" SDXC cards available. Cards with the specification Class 10 or V 10 and UHS-I are a good compromise. Moreover, these cards are significantly cheaper than the current high-end versions from the same manufacturer.

6. Other important facts

The batcorder system is only designed for the use of normal SDHC & SDXC cards. Adapter solutions for the use of Mini & Micro SD cards are designed for the transfer of data by using normal SD card readers and not for permanent use in electronic devices per se.

Furthermore, we strongly advise you not to use WLAN-enabled SD cards. These have

² <https://github.com/vrunkel/F3XSwift>

³ <https://github.com/AltraMayor/f3>

become rare these days, as current electronic devices mostly have a built-in USB or WLAN interface themselves. The batcorder system is not optimized for the use of such cards.