

GLOBAL WEATHERING: THE PROTOCOLS

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GLOBAL WEATHERING PROJECT: PROTOCOLS (CONSIDERATIONS)

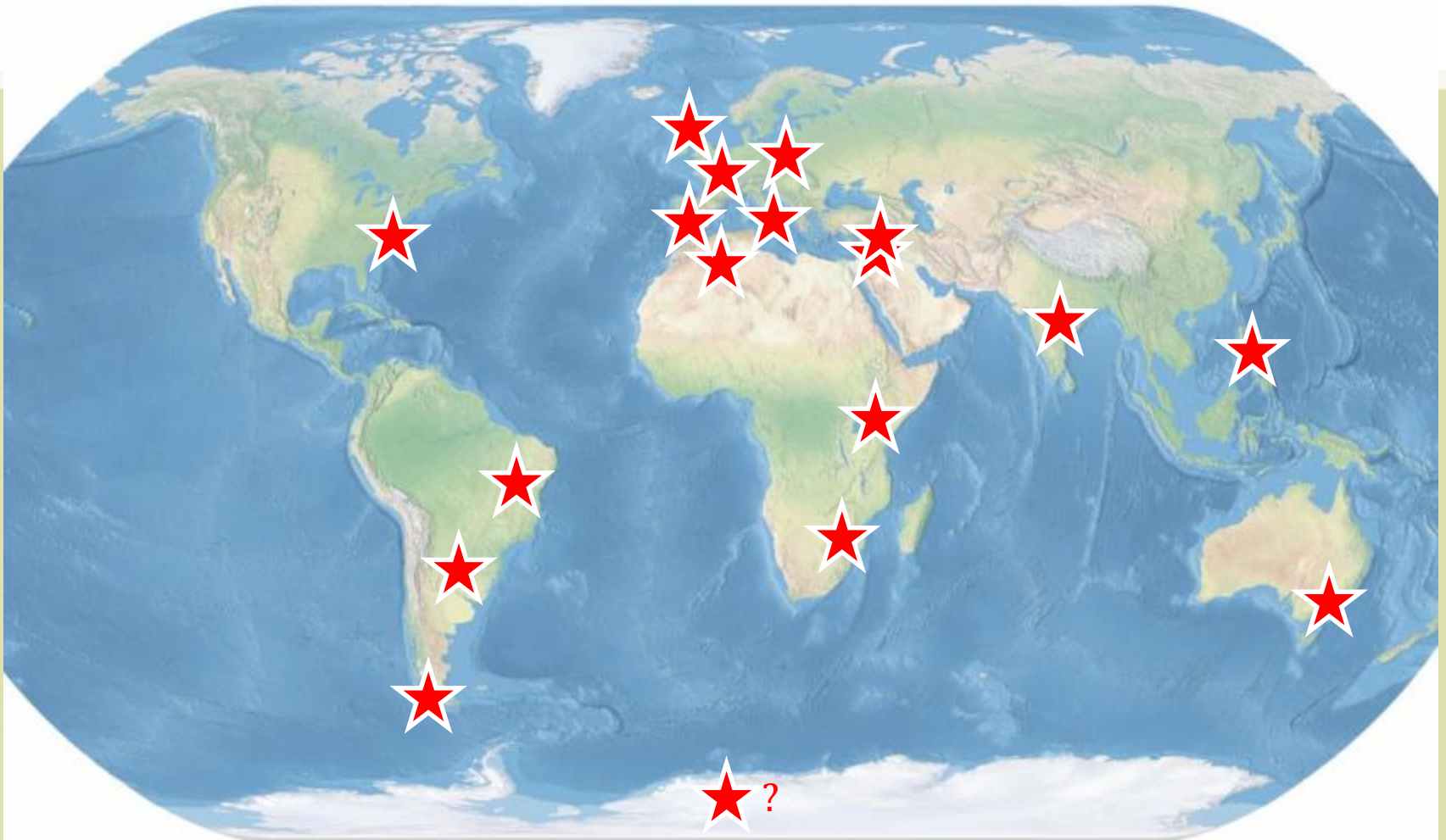
We aim to establish a simple experiment, in order to reduce the number of parameters that may influence the data.

Keep It Simple

We have participants from South America, Europe (Spain, France, Germany...), USA, South and East Africa, India, Mexico, Israel, Morocco and China

Together we can truly make this a GLOBAL PROJECT!

GLOBAL WEATHERING PARTICIPANTS



MAKE YOUR MARK ON THE MAP!

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[HTTPS://WWW.RESEARCHGATE.NET/PROJECT/GLOBAL-WEATHER-PROJECT](https://www.researchgate.net/project/global-weather-project)

GLOBAL WEATHERING PROJECT. PROTOCOLS: THE SITE

- Open air localities . Close to the observer's locality (to facilitate visits to the experiments).
- Close to an existing permanent weather station to take parameters delivered by a standard weather stations: temperature, rainfall, relative humidity, wind, sun exposure
- Place the experiment inside a cage or in fenced enclosures to prevent human/animal disturbance (see next slide).

CAGES OR FENCED ENCLOSURE



The easiest is to make cages. We have two models, the heaviest made in iron structure, both with paws to nail to the ground

Fenced enclosure next to a weather station



calcareous soil

sands

clay

GLOBAL WEATHERING PROJECT: PROTOCOLS: THE SAMPLE

- **THE SPECIES:** The most common large mammal all over the world is the *cow (Bos primigenius)*
- **THE SKELETON ELEMENT:** Ribs are one of the most abundant skeletal elements of an animal. The cow has 13 pairs of ribs.
- Ribs have been used to distinguish the 5 stages of weathering established by Behrensmeyer (1978).
- Ribs have to start the experiment defleshed /butchered, to prevent the attraction by scavengers.
NO boiling NO chemicals added to clean the ribs from meat



GLOBAL WEATHERING PROJECT: PRACTICAL PROCEDURE (YFJ... MY EXPERIENCE)

- We got in touch with a butcher to obtain complete ribs from cow slaughtering. This first contact provided 8 cow ribs, those the restaurants do not use for barbequing. We'll keep in getting 8 ribs, and after possibly a month, we may have the 24 ribs that may be enough for the experiment.

In order to prevent the influence of vegetation and/or soil (calcareous or acid substrate) we placed the ribs on a neutral inorganic substrate.



Initially we thought of trays, but they **may damp when raining or snowing**... The trays upside down, could be a solution. We found that flour sacs can be obtained everywhere in the world and be enough to isolate the ribs from the ground. These sacs likely should be replaced in subsequent visits.

GLOBAL WEATHERING PROJECT: PRACTICAL PROCEDURE (YFJ... MY EXPERIENCE)



Setting: 3 March, 2017. We have adapted an enclosure for plant growing to install the experiment. Note the weather station on the back (black arrow)



14th of March, 2017: after ten days the fat and meat turn white



11th of April, 2017: The ribs after a month: dermestids help cleaning remains of meat.



17th of September, after 6 months the sacks have to be replaced. Remains of meat are still covering the bone.



ARID ENVIRONMENT (PERIOD: 03/03/2017-24/11/2017)

- Air Temperature: Max: 41.9°C/ Min: -1,7°C
- Relative Humidity: Max: 97%/ Min: 6%
- Soil Temperature: Max: 36.2°C/ Min: 9.6°C
- Soil Humidity: Max: 39.5%/Min:13.1%
- Rain: Max: 25mm/Min:0mm
- (Total rain accumulated during the time period:
154.8mm)

GLOBAL WEATHERING PROJECT. PROTOCOLS: SAMPLING

- Start the experiment when ready.
- Pick up one to three ribs as control specimens.
- Setting the experiment may take some months. In summer, insects help cleaning the bones, but any time is good to start.
- First year: (Initial inspection after 1 month, consecutive 3 month inspections, then annually depending on results (taking one item each time)).
- Following years: sampling once at year, taking one item each time.
- **THE EXPERIMENT MAY LAST UP TO 10-15 YEARS... The best number of ribs needed = 24**

GLOBAL WEATHERING PROJECT: **ADENDA...**

- The objective of this experiment at a global scale is to compare weathered bones from different climates and environments all over the world.
- However, several experimenters have asked to add other skeletal elements (e.g. long bones, skulls, metapodials...). These elements may, of course, be added to the ribs. They have not been chosen because the number of these elements are much more reduced in the skeleton and will force to include individual differences (age, sex, weight...) in the experiment. However, they don't have to be excluded.

GLOBAL WEATHERING PROJECT:

ADENDA...

Small vertebrates, small and medium sized game/birds may be included in the Global Weathering Experiment, but we would advice to use a separate plastic/inorganic substrate and/or cage to prevent decay fluids that may corrode the ribs if placed too close.

Owl pellets may have special interest ... they can be added without any preparation. We would advice to add recently ejected barn owl (*Tyto alba*) pellets. Barn owl is also a species present all over the world). **Please be sure the pellets have been recently ejected** going to a zoo or similar place. Collected pellets in the nature may have already signs of weathering as we have been able to see in some collections.

<https://www.researchgate.net/project/Global-Weather-Project>

GOOD LUCK AND PLEASE KEEP IN TOUCH FOR ANY QUESTION, GOOD IDEA OR PROBLEM YOU MAY HAVE!

THIS IS THE STARTING OF A GLOBAL EXPERIMENT THAT MAY YIELD AN ENORMOUS AMOUNT OF INFORMATION!!