Database associated with

Vaccarelli et al. (2023) A global meta-analysis on the biological impacts of climate change in subterranean ecosystems. *One Earth*.

Explanation of database

First sheet: Publication [publication.csv]

In all columns, "NA" (not available) was used when a column could not be filled.

Paper_ID: A unique ID for each study. ID is repeated in separate rows if multiple instances (species, Domain, Ecological classification, etc..) apply to the same paper. For example, if the study focuses on different **Systems** or uses different **Statistical_method**, the ID was repeated, one for each.

Source: One of the following: "WoS" (Web of Science), "WoS alert" (Web of Science alert activated from initial search terms), "Reference list" (papers included based on authors' knowledge), and "Trial" (grey literature).

Author: Authors of the article.

Title: Article title.

Journal: The journal where the paper is published

Year_publication: Year of publication.

doi: doi of the paper or, if missing, article URL.

Geography: One of the standard biogeographic regions: "Global", "Nearctic", "Neotropical", "Afrotropical", "Palearctic", "Indomalayan", "Oceanian", and "Australasian".

Country: Character string reporting the country of the study.

Other_geography: Meso-scale geographical information (e.g., Western Italian Alps, Denali National Park, etc.)

Latitude: Coordinate y (latitude) of the resource, if available; numeric (in WGS84 decimal degrees)

Longitude: Coordinate x (longitude) of the resource, if available; numeric (in WGS84 decimal degrees)

Study type: One of: "Laboratory" (laboratory experiments), "Field" (field study), "Modelling" (modelling studies) and "Multiple" (studies combining multiple approaches)

Corresponding_emailed: If "Yes", the compiler contacted the corresponding authors of the paper to retrieve additional information.

Answer: One of:
"Yes" (the corresponding author answered the e-mail)
"No" (the corresponding author did not answer the e-mail)

Answer_positive: one of:
"Yes" (the corresponding author gave useful information to convert the statistics in the paper)
"No" (the corresponding author did not give useful information to convert the statistics in the paper)

Notes: Any notes/comments about the article that are of interest in interpretation.

Compiler: Coauthor who extracted the information from the article

Second sheet: Meta_Analysis [meta_analysis.csv]

Year: The year when the study occurred. If the study spanned multiple years, the years are separated by a hyphen (e.g., 2010-2013).

Domain: Indicates the domain of the study, which can be "Terrestrial" (terrestrial subterranean/surface domain), "Aquatic" (aquatic subterranean/surface domain), or "All" (for both domains).

System_specific: a typology of the system comprising: "Aquifer", "Burrows", "Calcrete", "Cave", "Doline", "Hyporheic", "Puddles and ditches", "Screes", "Spring", "Stream". If multiple categories apply, separated with a semicolon (e.g., Aquifer; Spring).

Phylum, Class, Order, Family, Genus, Species: Six ranked groupings of the taxonomic unit of focus provided within the literature. "Multiple" for community or population studies.

Ecological classification: Level of specialisation towards subterranean habitats, both terrestrial and aquatic:

"External" (surface-dwelling species occasionally using subterranean environments, no specialisation)

"Stygophile/Troglophile" (species that depend on subterranean environments for a portion of their lifecycle)

"Troglobiont/Stygobiont" (species that depend on subterranean environments to complete their whole lifecycle)

"Multiple" (for community-level studies)

Ecology_group: One of:
"Subterranean" (Species that depend on subterranean environments to complete at least one stage of their lifecycle)

"Surface" (Surface-dwelling species occasionally using subterranean ecosystems)

"Multiple" (for community-level studies)

Control: a string indicating whether a control was used in the study.

Control_identity: a string indicating the type of control identity adopted (e.g., present distribution, habitat temperature).

Predictor_variable: The variable type used in the study to infer climate change effects (e.g., temperature increase, habitat drying).

Response_variable: The response variable of interest (e.g., richness, Shannon).

Response_group: sub-categorization of the response macrogroups (e.g., abundance, diversity).

Response_macrogroup: One of:

"Organismal physiology" (studies examining the impact of climate change on organismal physiology)

"Behaviour" (studies examining the impact of climate change on organismal phenological mismatches)

"Population/community" (studies examining the impact of climate change on population and community level)

"Habitat" (studies examining the impact of climate change in terms of habitat shift and habitat availability)

Statistical_method: If an analysis was done, report the type of analysis used. Common analyses: "Pearson's r", "Spearman", "t-test", "ANOVA", "LM", "GLM", "GAM", "GLMM", "GAMM", "PCA".

Test_statistic: the specific measure. Common are "r" (for correlations), "t", "z" (for GLM/M), etc.

Value: A numeric value associated with the test statistic.

df: Degrees of freedom. Value entered.

N: Sample size used in the analysis. Value entered.

Direction_of_effect: One of "+" (positive direction of the effect), "-" (negative direction of the effect). If a statistical analysis is present, usually, it is the sign of the statistical effect. If the study is not based on statistics, it was assigned empirically.

P-value: p-value associated with the statistics.

Pearson_r_conversion: Standardize Pearson's r for the associated study statistic.

Notes: Any notes/comments about the article that are of interest in interpretation.

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Third sheet: Trait [trait.csv]

Paper_ID: A unique ID for each study. ID is repeated in separate rows if multiple instances (species, domain, ecological classification, etc..) apply to the same paper. For example, if the study focuses on different **Systems** or uses different **Statistical_method**, the ID was repeated, one for each.

Domain: Indicates the domain of the study, either "Terrestrial" (terrestrial subterranean/surface domain) or "Aquatic" (aquatic subterranean/surface domain), or "All" for studies comprising both domains.

Phylum, Class, Order, Family, Genus, Species: Six ranked groupings of the taxonomic unit of focus provided within the literature. "Multiple" for community or population studies.

Baseline: Baseline value measured at control or reference non-stressful conditions.

Baseline_type: Specifies the type of baseline measurement (e.g., concentration, metabolic rate).

N: Sample size used in the analysis. Value entered.

Methodology: Indicates the methodology used in the study. One of:

"static" (measurement of knockdown time at a constant temperature)

"dynamic" (ramping method in which a critical temperature is measured while the organism is gradually heated)

Ramping (min): Ramping duration in minutes.

Ramping_rate: Rate of the ramping (applies only to dynamic methods).

Ramping_unit: Unit of measurement for the ramping (e.g., °C).

Acclimatation: Indicates whether the organisms were acclimated before the experiments, "Yes" or "No".

Treatment: Type of treatment applied in the experiment (e.g., temperature).

Response_type_group: Stress response group (e.g., tolerance limits, mortality).

Response_type_II: Additional categorization of the response (e.g., LT100, LT50).

Response: The specific response variable measured, categorized as either "lethal" (upper thermal tolerance limits measured with different methodologies) or "sublethal" (metabolic rates, acclimation capacity, locomotor activity, immune defence, gene expression, behavioural responses and molecular stress biomarkers such as antioxidant enzymes activity and hormones).

Value: The value obtained from the experiment.

Delta_Value: The delta value obtained from the experiment compared to the baseline.

Ecological_Classification: Level of specialisation towards subterranean/surface habitats, both terrestrial and aquatic. One of:

"external" (surface-dwelling species occasionally using subterranean environments, no adaptations)

"troglophile/stygophyle" (species that depend on subterranean environments for a portion of their lifecycle)

"troglobiont/stygobiont" (species that depend on subterranean environments to complete their whole lifecycle)

Adaptation: General adaptation of the organisms to subterranean environments reported in the study. One of:

"Null", "Low", "Intermediate", "High" according to the level of general adaptation.

Morphologic_Adaptation: Morphological adaptations of the organisms to the subterranean environment reported in the study. One of:

"Null", "Low", "Intermediate", "High" according to the level of morphologic adaptation.

Body_size: Body size of the organisms reported in the study.

Notes: Any notes/comments about the article that are of interest in interpretation.

Compiler: Coauthor who extracted the information from the article.