SISAL version 1b: updates since SISAL version 1

This document lists all the changes made to the SISAL version 1 (Atsawawaranunt et al., 2018a, 2018b) to create SISAL version 1b (Atsawawaranunt et al., 2019). These changes are copyright 2019 University of Reading.

Reference:

Atsawawaranunt, K., Harrison, S., Comas-Bru, L.: SISAL (Speleothem Isotopes Synthesis and AnaLysis Working Group) database Version 1.0. University of Reading. Dataset. http://dx.doi.org/10.17864/1947.147, 2018a.

Atsawawaranunt, K., Comas-Bru, L., Amirnezhad Mozhdehi, S., Deininger, M., Harrison, S. P., Baker, A., Boyd, M., Kaushal, N., Ahmad, S. M., Ait Brahim, Y., Arienzo, M., Bajo, P., Braun, K., Burstyn, Y., Chawchai, S., Duan, W., Hatvani, I. G., Hu, J., Kern, Z., Labuhn, I., Lachniet, M., Lechleitner, F. A., Lorrey, A., Pérez-Mejías, C., Pickering, R., Scroxton, N. and SISAL Working Group Members: The SISAL database: a global resource to document oxygen and carbon isotope records from speleothems, Earth Syst. Sci. Data, 10(3), 1687–1713, http://dx.doi.org/10.5194/essd-10-1687-2018, 2018b.

Atsawawaranunt, K., Harrison, S., Comas-Bru, L.: SISAL (Speleothem Isotopes Synthesis and AnaLysis Working Group) database Version 1b. University of Reading. Dataset. http://dx.doi.org/10.17864/1947.189, 2019.

1. Structural changes
- sisal_chronology table added to the database and linked to the sample table through the sample_id (refer to README_SISALv1b.docx for details on the columns of this new table)
- Table: dating
    - date_used_COPRA column added
        - ENUM data type (dropdown list)
        - Choices are 'yes', 'no' or 'cannot be performed'
    - date_used_linear column added
        - ENUM data type (dropdown list)
        - Choices are 'yes' or 'no'
    - decay_constant dropdown list: 'others' changed to 'other'
    - date_type dropdown list: 'other' added to dropdown list
- Table: original_chronology
    - ann_lam_check dropdown list: 'other' added to dropdown list
- Table: dating_lamina
    - depth_lam allowed NULL (this is to incorporate entity CH-1 from Chillagoe cave

which had no depth information)
- Table: entity
    - drip_type dropdown list: 'not applicable' added

2. Modified records

- Bukit Assam cave (site_id = 116)
    - BA04, BA02 and BA03_highres (entity_id = 237, 239 and 285)
- Tamboril cave (site_id = 27)
    - TM0 and TM2 (entity_id = 97, 98)
- Bittoo cave (site_id = 1)
    - BT-1, BT-2.1, BT-2.2, BT-2.3, BT-2.4, BT-2.5, BT-4, BT-6, BT-8 and BT-9 (entity_id = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
- Villars cave (site_id = 4)
    - Vil-stm6, Vil-stm9, Vil-stm11, Vil-stm14, Vil-stm27, Vil-car1 and Vil-stm1 (entity_id = 27, 28, 29, 30, 31, 32, 33)
- Mawmluh cave (site_id = 12)
    - KM-A (entity_id = 61)
- Spannagel cave (site_id = 58)
    - SPA12, SPA70, SPA128 and SPA127 (entity_id = 138, 139, 140, 141)
- Timta cave (site_id = 61)
    - T1 (entity_id = 145)
- Chauvet cave (site_id = 77)
    - Chau-stm6 (entity_id = 166)
- Xiaobailong cave (site_id = 127)
    - XBL-3, XBL-4, XBL-7, XBL-26, XBL-27, XBL-29, XBL-48 and XBL-65 (entity_id = 263, 264, 265, 266, 267, 268, 269, 270)
- KNI-51 cave (site_id = 155)
    - KNI-51-A1 and KNI-51-P (entity_id = 418, 419)

3. New records

3.1. Existing sites

- Paraiso cave (site_id = 3)
    - Paraiso composite (entity_id = 424)
- Dongge cave (site_id = 39)
    - DA_2005 (entity_id = 442)
- Soylegrotta cave (site_id = 57)
    - SG93 (entity_id = 435)
- Hoti cave (site_id = 152)
    - H14 (entity_id = 415)
- KNI-51 cave (site_id = 155)

- o   KNI-51-A1 and KNI-51-P (entity_id = 418, 419)
- Jaraguá cave (site_id = 10)
  - o   JAR_composite, JAR4 and JAR1 (entity_id = 449, 447, 448)
- Mawmluh cave (site_id = 12)
  - o   MAW-0201 (entity_id = 451)
- Dongge cave (site_id = 39)
  - o   D4_2005 (entity_id = 446)
- Korallgrottan cave (site_id = 102)
  - o   K1 (entity_id = 450)
- Sofular cave (site_id = 141)
  - o   So-17A and So-2 (entity_id = 429, 456)

3.2. New sites
- Qingtian cave (site_id = 176)
  - o   QT9, QT24, QT40, QT41 and QT25 (entity_id = 383, 384, 385, 386, 387)
- Santo Tomas (site_id = 177)
  - o   CM (entity_id = 388)
- Yamen (site_id = 178)
  - o   Y1 (entity_id = 389)
- Closani cave (site_id = 179)
  - o   C09-2 (entity_id = 390)
- Chillagoe cave (site_id = 180)
  - o   CH-1 (entity_id = 391)
- Forestry cave (site_id = 181)
  - o   10FC-02 and 05FC-04 (entity_id = 392, 393)
- Kotumsar cave (site_id = 182)
  - o   NK (site_id = 394)
- Dos Anas cave (site_id = 183)
  - o   CP and CG (entity_id = 395, 443)
- Cape range (site_id = 184)
  - o   CR-1 (entity_id = 396)
- Beatus cave (site_id = 185)
  - o   EXC4,EXC3 (entity_id = 398,397)
- Bribin cave (site_id = 186)
  - o   JB2 (entity_id = 399)
- Cesare Battisti cave (site_id = 187)
  - o   CB25, CB39 and CB47 (entity_id = 400, 401, 402)
- Chan Hol cave (site_id = 188)
  - o   CH-7 (entity_id = 403)
- Chen Ha cave (site_id = 189)
  - o   CH04-02 (entity_id = 404)
- Cold Water cave (site_id = 190)
  - o   CWC-3l, CWC-1s and CWC-2ss (entity_id = 407, 405, 406)
- Devil's Icebox cave (site_id = 191)

- o DIB-1 and DIB-2 (entity_id = 408, 409)
- El Condor cave (site_id = 192)
  - o ELC_composite (entity_id = 410)
- Frasassi cave system - Grotta Grande del Vento (site_id = 193)
  - o FR16 (entity_id = 411)
- Goshute cave (site_id = 194)
  - o GC_2 and GC_3 (entity_id = 412, 413)
- Harrison's cave (site_id = 195)
  - o HC-1 (entity_id = 414)
- Karaca cave (site_id = 196)
  - o K1 (entity_id = 416)
- Klaus Cramer cave (site_id = 197)
  - o KC1 (entity_id = 417)
- Lianhua (site_id = 198)
  - o A1 (entity_id = 420)
- Lynds cave (site_id = 199)
  - o Lynds_BCD (entity_id = 421)
- Minnetonka cave (site_id = 200)
  - o MC08-1 (entity_id = 422)
- Moondyne cave (site_id = 201)
  - o MND-S1 (entity_id = 423)
- Piani Eterni karst system (site_id = 202)
  - o GG1, IS1 and MN1 (entity_id = 426, 427, 425)
- Poleva cave (site_id = 203)
  - o PP10 (entity_id = 428)
- São Bernardo cave (site_id = 205)
  - o SBE3 (entity_id = 430)
- São Matheus cave (site_id = 206)
  - o SMT5 (entity_id = 431)
- Shatuca cave (site_id = 207)
  - o Sha-2, Sha-3 and Sha-composite (entity_id = 432, 433, 434)
- Tangga cave (site_id = 208)
  - o TA12-2 (entity_id = 436)
- Uluu-Too cave (site_id = 209)
  - o Uluu2 (entity_id = 437)
- White moon cave (site_id = 210)
  - o WMC1 (entity_id = 438)
- Xiangshui cave (site_id = 211)
  - o X3 (entity_id = 439)
- Xibalba cave (site_id = 204)
  - o GU-Xi-1 (entity_id = 440)
- Yaoba Don cave (site_id = 175)
  - o YB (entity_id = 441)
- Peqiin cave (site_id = 212)

- o PEK_composite, PEK 10, PEK 9 and PEK 6 (entity_id = 452, 453, 454, 455)
- Arch cave (site_id = 149) (site_id replaces a duplicate entry of Dongge cave, see details in section 5.1.)
  - o DM05-01 (entity_id = 444)

3.3. Table: sisal_chronology

3.3.1. COPRA age-depth models
- Spannagel cave (site_id = 58)
  - o SPA12, SPA70, SPA128 and SPA127 (entity_id = 138, 139, 140, 141)
- Hölloch im Mahdtal cave (site_id = 115)
  - o HOL-16, HOL-17 and HOL-18 (entity_id = 231, 232, 233)
- Arch cave (site_id = 149)
  - o DM05-01 (entity_id = 444)
- Te Anau Fiordland (site_id = 161)
  - o Aurora (entity_id = 355)
- Calcite cave (site_id = 162)
  - o Calcite (entity_id = 356)
- Gardener's Gut (site_id = 163)
  - o GG1 (entity_id = 357)
- Max's cave (site_id = 164)
  - o MAXS (entity_id = 359)
- Ruakuri cave (site_id = 165)
  - o Ruakuri C (entity_id = 360)
- Te Reinga cave (site_id = 166)
  - o Te Reinga A and Te Reinga B (entity_id = 361, 362)
- Waiau cave (site_id = 167)
  - o Waiau (entity_id =363)
- Wazpretti cave (site_id = 168)
  - o WP-1 (entity_id = 364)
- Doubtful Xanadu (site_id = 169)
  - o Doubful (entity_id = 365)

3.3.2. Linear age-depth models
- Milchbach cave (site_id = 123)
  - o MB-6 (entity_id = 258)
    - ■ date_used_COPRA = 'cannot be performed'
- Gardener's Gut (site_id = 163)
  - o GG2 (entity_id = 358)
    - ■ date_used_COPRA = 'cannot be performed'

3.4. New hiatuses added
- Sofular cave (site_id = 141), Entity So-1 (entity_id = 305)

- o 'Event; hiatus' added at depth = 1350.75 in dating table, date_used = 'yes' (id_dating = 7022)
- o Hiatus added in the sample and hiatus table (sample_id = 252958)

4. Removed records
- – Grotte La Piste (site_id = 135).

5. Edits to SISAL version 1

5.1. Table: site
- – Mawmluh cave (site_id = 12)
  - o geology updated from 'limestone' to 'mixed'.
- – Jaraguá cave (site_id = 10)
  - o geology updated from 'limestone' to 'dolomite'
- – Korallgrottan cave (site_id = 102)
  - o geology updated from 'limestone' to 'mixed'
  - o elevation updated from 540 to 570
  - o longitude updated from 14.0000 to 14.1500
- – Dongge cave (site_id = 39)
  - o latitude from 25.2830 to 25.2833
  - o longitude from 108.0830 to 108.0833
  - o geology from 'unknown' to 'limestone'
- – Sofular cave (site_id = 141)
  - o geology from 'unknown' to 'limestone'
  - o rock_age from 'unknown' to 'Cretaceous'
  - o elevation updated from 700 to 440
- – Brown's cave (site_id = 95)
  - o latitude from 22.8894 to 27.8894
- – Uamh an Tartair (site_id = 21)
  - o longitude from 4.9300 to -4.9300
- – Abaliget cave (site_id = 31)
  - o latitude from 46.13 to 46.1333
  - o longitude from 18.12 to 18.1167
- – Leany cave (site_id = 84)
  - o site_name changed to "Leány cave"
- – Trio cave (site_id = 90)
  - o site_name changed to "Trió cave"
- – Santo Tomas cave (site_id = 177)
  - o geology from 'unknown' to 'mixed'
  - o rock_age updated from 'unknown' to 'Jurassic'
  - o monitoring from 'unknown' to 'yes'.
- – Two repeated entries for "Dongge cave" (site_id = 39, 149)

- o entity_id = 324 linked to site_id = 39 instead of 149 and site_id = 149 deleted.
- − Elevation was added to the sites where this was missing. The following sentence was added to the notes: "*This site's elevation has been extracted from the "NOAA NGDC GLOBE topo" Digital Elevation Model: http://iridl.ldeo.columbia.edu/SOURCES/.NOAA/.NGDC/.GLOBE/topo/*"
  - o Anjokipoty cave (site_id = 32)
  - o Whiterock cave (site_id = 65)
  - o Clearwater/Wind caves cave connection (site_id = 67)
  - o Cango cave (site_id = 74)
  - o Green Cathedral cave (site_id = 93)
  - o Dante cave (site_id = 99)
  - o Paixão cave (site_id = 113)
  - o Cave of the Bells (site_id = 134)
  - o Calcite cave (site_id = 162)
  - o Te Reinga cave (site_id = 166)
  - o Chillagoe cave (site_id =180)

5.2. Table: entity

- Istvan Hatvani' standardised to 'István G. Hatvani'
  - o entity_id = 159, 160
- ' Ting Yong Li' standardised to 'Ting Yong Li'
  - o entity_id = 171, 172
- Where speleothem_type was 'composite', drip_type was changed to 'not applicable'.
  - o Entity SAH-AB, 7H, COMNISPA II, HOL-16-17, HOL-comp, BCC_composite, KC-Composite, Soreq-composite and LL_Comp_2013 (entity_id = 132, 133, 142, 234, 235, 244, 276, 292, 354, 372)
- Dongge cave (site_id = 39), D4 (entity_id = 115)
  - o renamed to 'D4_2004'
- Suozi cave (site_id = 59), entity Sz2 (entity_id = 143)
  - o Removed "cover thickness"
- The following entities had speleothem_type changed from 'unknown' to 'stalagmite'
  - o Entities MSD, MSL, PD, YT, KM-A, VSPM1, VSPM4, FS_2012, FS2010, BCC-2, BCC-4, BCC-6, BCC-8 and BCC-10 (entity_id = 40, 41, 42, 43, 44, 61, 99, 100, 321, 322, 271, 272, 273, 274, 274)
- data_DOI_URL formatted.
  - o data_DOI_URL with links to NOAA formatted to:
    - ▪ www.ncdc.noaa.gov/paleo-search/study/#####
      - • where ##### = study number.
      - • Example: https://www.ncdc.noaa.gov/paleo-search/study/24070 as to https://www.ncdc.noaa.gov/paleo/study/24070
  - o Where the data_DOI_URL was actually the paper's DOI/URL, this was removed (entity_id = 62, 89, 90, 91, 92, 136, 279, 311, 312, 378)
  - o Where the data_DOI_URL are DOIs, this is formatted to 10.xxxx/xxxxx.xxx

5.3. Table: dating

- Gardener's Gut (site_id = 163), GG2 (entity_id = 358)
  - dating_id = 6711, corr_age_uncert_neg and corr_age_uncert_pos changed from 0 to 0.2
  - corr_age corrected for dating_id = 6705, 6706, 6707, 6708, 6709, 6710 (added 50 to corr_age)
- Gardener's Gut (site_id = 163), GG1 (entity_id = 357)
  - dating_id = 6704, corr_age_uncert_pos and corr_age_uncert_neg changed from 0 to 0.2
- Where mineralogy is 'unknown' and arag_corr is not 'unknown', this has been corrected to 'unknown'; entity_id = 55, 56, 57, 113, 116, 146, 175, 203, 372
- U/Th corr_age and uncertainties added.
  - Exhaleair cave (site_id = 150), entity ED1 (entity_id = 325)
  - Nettlebed cave (site_id = 158), entity MD3 (entity_id = 350)
- date_type: 'Event; start of laminations' and 'Event; end of laminations' swapped (where it is modern, it should be 'Event; end of laminations'). These included all 'Event; xxx of laminations' in entities_id = 74, 85, 86, 87, 88, 108, 153, 128, 210, 217, 229, and 279.
- date_type: 'Event; end of laminations' added at depth_dating = 0, date_used = 'yes', and corr_age = -45, corr_age_uncert_pos = 0 and corr_age_uncert_neg = 1 (dating_id = 6993)

5.4. Table: reference

- Citations reformatted for ref_id = 63 and ref_id = 73

5.5. Table: sample

- Entity LII4 and LII4-KH (entity_id = 103, 104; Lobatse cave site_id = 30), where arag_corr="no" corrected to "yes" (sample_id = 44843, 44848, 44849, 44850, 44851, 44852, 44895, 44896, 44897, 44898, 44899)

5.6. Table: original_chronology

- interp_age in Cango cave (site_id = 74), entity V3 (entity_id = 163) were amended to refer to the correct modern reference.

5.7. Table: notes

- Sentence added to the notes (Ceremosnja cave, site_id = 76)
  - '*The raw uncorrected 14C ages in entity_id=165 are not from the original publication. Only dcp corrected 14C ages were available to us*'
- Notes for the following sites were altered to say "... no age model in original publication." as to '... no age model.':
  - Hölloch im Mahdtal cave (site_id = 115)
  - Milbach cave (site_id = 123)
  - Te Anau Fiordland (site_id = 161)

- o Calcite cave (site_id = 162)
  - o Gardener's Gut (site_id = 163)
  - o Max's cave (site_id = 164)
  - o Ruakuri cave (site_id = 165)
  - o Te Reinga cave (site_id = 166)
- New notes added for:
  - o Jaragua cave (site_id = 10)
  - o Soylegrotta cave (site_id = 57)
  - o McLean's cave (site_id = 49)
  - o Bukit Assam cave (site_id = 116)
  - o Sofular cave (site_id = 141)
  - o Waiau cave (site_id = 167)
  - o Wazpretti cave (site_id = 168)
  - o Doubtful Xanadu (site_id = 169)
- Previous notes were edited to include new details:
  - o Spannagel cave (site_id = 58)
  - o Baradla cave (site_id = 71)
  - o Korallgrotan cave (site_id = 102)
  - o Milbach cave (site_id = 123)
  - o Exhaleair cave (site_id = 150)
  - o Hoti cave (site_id = 152)
  - o KNI-51 cave (site_id = 155)
  - o Nettlebed cave (site_id = 158)
- Notes were removed as they no longer apply to the updated data
  - o Bittoo cave (site_id = 1)
  - o Villars cave (site_id = 4)
  - o Mawmluh cave, KM-A (site_id = 12)
  - o Timta cave (site_id = 61)
  - o Chauvet cave (site_id = 77)
  - o Xiaobailong cave (site_id = 127)
- Typos corrected
  - o Yok Balum cave (site_id = 107)