User instructions for the OA-ICC bibliographic database

Background

The OA-ICC bibliographic database is based on an initiative developed by Jean-Pierre Gattuso (CNRS/UPMC) in 1995. The database continued to evolve and was maintained as part of the *European Project on Ocean Acidification* (EPOCA) from 2008 to 2012 (Gattuso & Hansson, 2011). In July 2012, the maintenance and update of the database became one of the activities of the IAEA Ocean Acidification International Coordination Centre (OA-ICC).

Database

The database is freely available on Mendeley, and includes journal articles, MSc and PhD dissertations, books, and book chapters, from 1922 to present. In November 2018, the database held more than 5,000 references. The online version of the base includes citations, DOI's, abstracts and keywords allocated by the OA-ICC (see list below). Please note that the keywords identified by journals are not included, the 'Author keywords' in Mendeley are in fact the keywords specified by the OA-ICC.

An update to the database is provided to users every month.

How to access the database

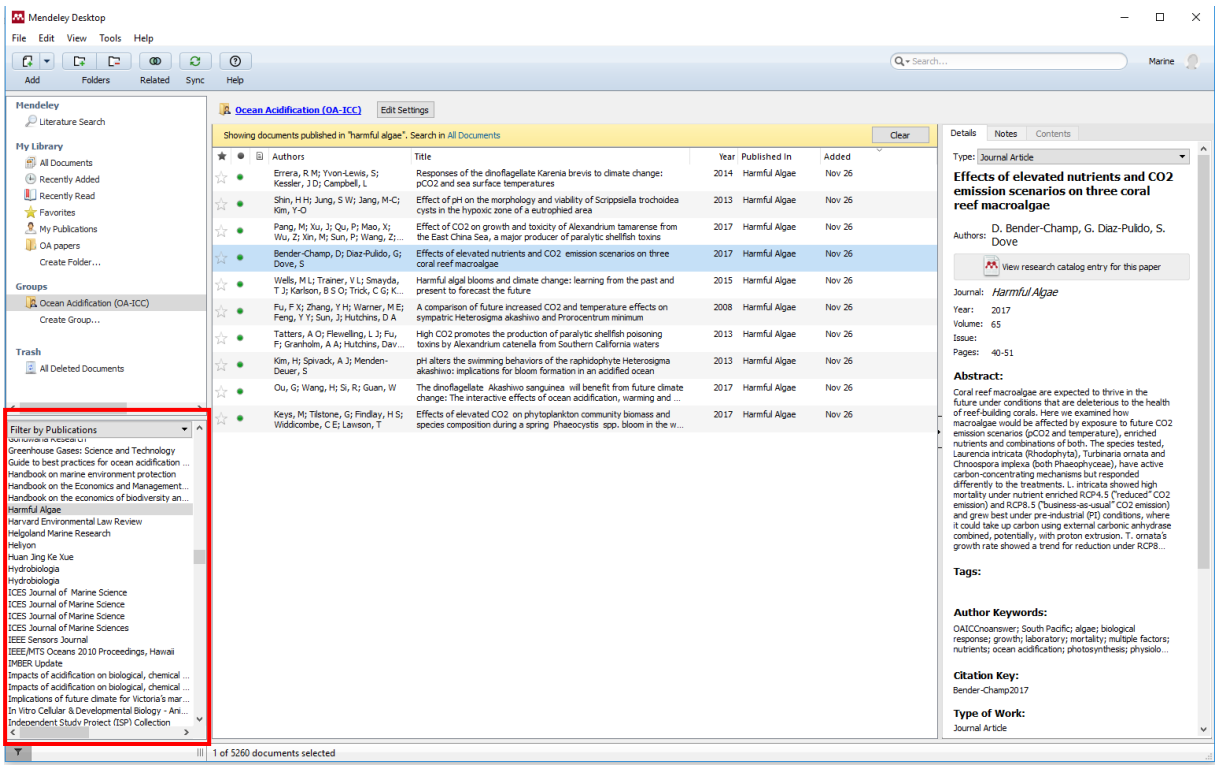
1. Go to the Mendeley homepage and create a free account
2. Click on the Groups tab, and search for the group "Ocean Acidification (OA-ICC)"
3. Users can work with the bibliographic database online, but some features will not be available (such as using the keywords allocated by the OA-ICC). Instead, it is recommended to download the Mendeley desktop application available for Mac, Windows and Linux

IMPORTANT: Please do not modify references and sync with the online public version of this database! The same copy of the base is uploaded weekly in order to avoid conflicts and erase potentially erroneous modifications by the followers. If you wish to modify references, please drag and drop the references in this group "Ocean Acidification (OA-ICC)" into a new folder in your private "My Library".

How to search the database (in Mendeley Desktop)

1) Using filters

In Mendeley Desktop, it is easy to filter papers by Author, Author Keywords, My Tags or Publications. For example, when selecting the journal “Harmful Algae” using the Publications filters, only references from this journal are found.



2) Using the Search window

The Search window is on the top-right of the Mendeley desktop application. Here are several advanced search options:

Advanced Search Operators

Search for...	**...to find articles that have**
citation analysis	the words **citation** or **analysis**
citation AND analysis	both the words **citation** and **analysis**
ponies OR "small horses"	the word **ponies** OR the exact phrase **small horses**
ponies AND -"small horses"	the word **ponies** but NOT the phrase **small horses**
"real time quantitative PCR"	the exact phrase **real time quantitative PCR**
title:"real time quantitative PCR"	the exact phrase **real time quantitative PCR** in the **title** field
author:Albert	the name **Albert** in their list of authors
author:"Albert Einstein"	the exact name **Albert Einstein** in their list of authors
author:Campbell AND author:Ellis	both the names **Campbell** and **Ellis** in their list of authors
author:Campbell AND -author:Ellis	the name **Campbell** but NOT **Ellis** in their list of authors
published_in:"PLoS Medicine"	the exact phrase **PLoS Medicine** in their journal or publication name
intracellular AND year:2008	the word **intracellular** and were published in the year **2008**

Example:

- Search: “calcification”. This will give users references mentioning the word calcification **anywhere (title, abstract, keywords)**.
- Search: “year: 2012”. This will give users all references published in 2012.
- Search “calcification AND year: 2012”. This will give users all references from the year 2012 mentioning the word ‘calcification’

3) Search using the OA-ICC keywords (Author Keywords)

Note that the “Author Keywords” are not added by the authors, but instead are allocated by the OA-ICC. The list of OA-ICC keywords, with explanations, is available below.

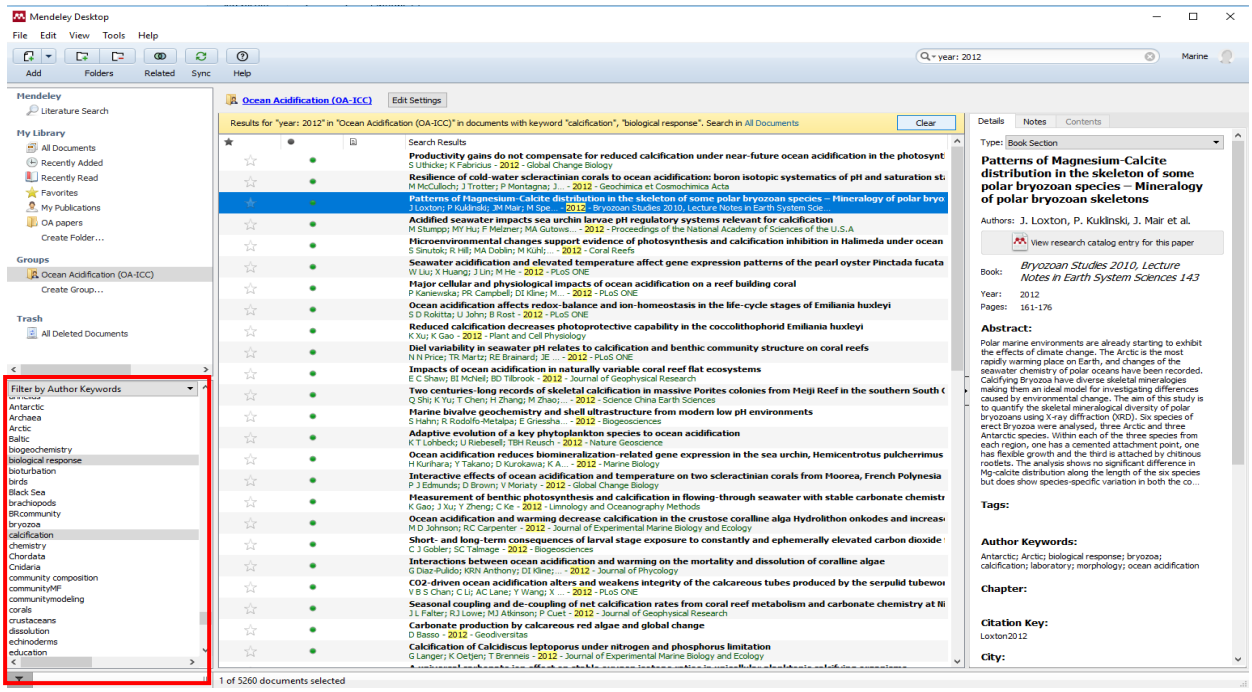
Example:

- Search: “year: 2012”
- Add the filter “biological response”. This will narrow the search down to papers in 2012 which have examined biological response to OA
- Add the filter “calcification” (use the CTRL button to choose multiple filters). This will give you biological response papers from 2012 looking at calcification, according to the logic used by the OA-ICC for keyword allocation (see below).

Please note that search methods #2 and #3 will yield different results because #2 searches terms mentioned in the title, abstract, or keywords, whereas #3 will yield results within an Author Keyword filter, which has been allocated by the OA-ICC.

For example, a search for “calcification” using search method #2 will include papers where the term “calcification” is mentioned, but the calcification rate is not measured (1156 references found in Nov 2018). Search method #3 will only include papers where calcification rates are measured (740 references found in Nov 2018.

In order to see the total number of papers found within a search, use “CTRL-A” to select all references, and the number of references will be displayed at the bottom of the screen.



OA-ICC keywords (*last updated 30 July 2018*)

MAIN CATEGORIES

Chemistry

data collection (time series, cruises etc.)
methods discussions with chemical equations (saturation states, pH etc.)
impact of OA on the speciation or dissolution of elements/metals
sound absorption (borate speciation)

Biogeochemistry

export, fluxes, biogeochemical cycles, vertical transport etc.
elemental ratios (C:N, C:P, N:P)
POC, PIC, TEP, DOC...
DMS, climate relevant gases
Feedbacks to the atmosphere

Paleo

Only when there is paleo data (not when only briefly discussing a paleo implication of a method e.g.)

Modeling

- **Individualmodeling** (one organism)
- **Communitymodeling** (e.g. mesocosm experiments)
- **Regionalmodeling** (one region of the ocean)
- **Globalmodeling**

Biological response

- **Phytoplankton**
- **Zooplankton**
- **Cnidaria** (except corals)
- **Corals** (including coral reefs)
- **Fish**
- **Protists** (including foraminifera and zooxanthellae (free-living and symbionts))
- **Algae**
- **Prokaryotes** (including cyanobacteria)
- **Mollusks**
- **Echinoderms**
- **Crustaceans**
- **Nematodes**
- **Phanerogams**
- **Annelids**
- **Nemertea**
- **Sipuncula**
- **Bryozoa**
- **BRcommunity** (the response of a mix of organisms, mesocosm experiments e.g.)
- **Brachiopods**
- **Porifera**
- **Birds**
- **Fungi**
- **Kinorhyncha**
- **Virus**
- **Xenacoelomorpha**

- **Archaea**
- **Chordata**
- **Sediment**
- **Platyhelminthes**
- **Tardigrada**
- **Gastrotricha**
- **Mammals**

Review (scientific and "substantial")
Mitigation
Policy
Socio-economy
Fisheries
Methods (technical, method descriptions)
Education
Optical (Balch and Utgoff 2009)

PROCESSES AND PARAMETERS

Calcification

Rate: (dry mass ($CaCO_3$ or C)/time unit) [mmol/m^2/h, g/m^2/h...]
⊗PIC, PIC production (PIC/time unit)
Percent weight increase/month (skeletal weight)
Alkalinity anomaly (A_T down), buoyant weight etc.
Mechanism: incorporation of ions etc.
Mass

Primary production

Rate: (O_2/time unit, CO_2/time unit, C/time unit), carbon fixation, ^{14}C uptake, ⊗POC, POC production (POC/time unit)

Photosynthesis (check also keyword "primary production")

Underlying biological mechanisms: CA activities, CCM, Fv/Fm…

Growth

Pelagic: Cell division rate (μ)
Growth rate (e.g. g/m^3/d)
Linear extension (e.g. cm/yr) (benthic). For example length or weight increase per time unit of the same organism. Growth of one organism (different from comparing 2 organisms' sizes at the end of the experiment). See Parker et al 2010 for a clear example.

Reproduction

Hatching
Embryonic development
Fertilization
Recruitment/settlement

Performance

Swimming, motility, locomotory scope
Behaviour
Avoidance behaviour
Feeding behaviour/rates/activity

Risk behaviour
Escape behaviour
Stress response/resistance

Dissolution (including bioerosion)

Physiology (including metabolism)
Acid-base balance, intracellular pH etc.
Immune response, immune suppression
Aerobic scope/performance
Metabolic rate
Gill oxygen consumption, gill energy budgets
Thermal tolerance
Heart rate/activity
Ion regulation
Protein and RNA synthesis
Thermal tolerance
Enzyme activities
Apoptosis
Lipid class composition
Fatty acid composition

Nitrogen fixation

Nitrogen fixation only. Nitrification etc. goes under "otherprocess".

Respiration

Mortality

Morphology
Morphology, morphometry
(shape, shell or body (org.) weight or length at a given moment/stage (no rate), i.e. comparison of SIZE of different organisms subjected to different conditions, at a given moment). See Parker et al. 2010 for a clear example.
Skeletogenesis/shell formation but no rate (e.g. number of spines…). Morphological differences (e.g. scanning electron photographs), abnormalities… Observations of coccolith weights (e.g. Beaufort papers). For example field studies (Marshall et al 2008).

Adaptation (formerly under Otherprocess) – entry as keyword on 26 November 2010
Adaptation/acclimation (including evolutionary).
The keyword "otherprocess" is kept for these papers. If statistical analysis is done with papers added prior to this date, this keyword cannot be used, "otherprocess" must be used instead.

Community composition (formerly under Otherprocess) – entry as keyword on 14 August 2009
Relative abundance of plankton/diversity/biodiversity/competition/community composition.
The keyword "otherprocess" is kept for these papers. If statistical analysis is done with papers added prior to this date, this keyword cannot be used, "otherprocess" must be used instead.

Abundance (formerly under Otherprocess) – entry as keyword on 12 May 2012
The keyword "otherprocess" is kept for these papers. If statistical analysis is done with papers added prior to this date, this keyword cannot be used, "otherprocess" must be used instead.

Otherprocess, any process which is not covered by the keywords above, e.g.:

Metamorphosis
Photoprotection
Algal infection rate (establishment of symbiosis)
Kelp phrootannin (phenolic) production in blade tissues
Histopathology of gill and kidney tissue (Harris 1999)
Olfaction
Grazing
Protein production (Grosset 2006)
Release of nutrients (Bulling)
Nutrient uptake, availability (Rivers 1995, Xu 2010)
Iron uptake (cellular trace metal conc.)
Magnesium content
Bleaching
Toxicity
Pigmentation
Nitrification, denitrification
Bioaccumulation of metals
Zooxanthellae density
Domoic acid production
CDOM abundance
Virulence
Non photochemical quenching
Etc…

METHODS

1. **Laboratory**
   Mesocosms (field mesocosms and lab when the word mesocosm is explicitly used in the paper)
   Molecular biology (gene expression, genetic diversity, DNA, RNA, proteomics etc. and ONLY for experimental studies)

2. **Field** (cruises etc, observation, on-site experiments, shipboard experiments)
   Mesocosms (field mesocosms and lab when the word mesocosm is explicitly used in the paper)
   Molecular biology (gene expression, genetic diversity, DNA, RNA, proteomics etc. and ONLY for experimental studies)
   Vents

3. **Multiple factors** + the other factors considered (ONLY for "Biological response" experimental papers)

- **temperature**
- **light**
- **salinity**
- **nutrients**
- **oxygen**
- **toxicants**
- **fishing pressure**
- **pathogens**
- **metals**
- **bioturbation**
- **communityMF** (community composition; the "communityMF" keyword reflects that this is a sub-keyword of the "Multiple factors" category, since community composition already exists as a keyword of its own).
- -**flow**

- **Predation**
- **Noise**
- **substrate**

GEOGRAPHY

Collection site of the organism. This is only used when a geographical region is clearly indicated. It is not used for organisms that have been cultured for a long time in the laboratory.

1. **North Atlantic**
2. **South Atlantic**
3. **North Pacific**
4. **South Pacific**
5. **Arctic**
6. **Antarctic**
7. **Indian**
8. **Mediterranean**
9. **Baltic**
10. **Red Sea**
11. **Black Sea**

Miscellaneous

Papers that only briefly mentions ocean acidification are NOT ADDED to the Biblio base

Papers that discuss ocean acidification briefly, are given the keywords “ocean acidification” and “NOTSTAT”

Reports and non peer-reviewed documents are given the keyword “NOTSTAT”

Submitted articles are not included.

Discussion papers (BGD etc.) are given the keyword “NOTSTAT DISC”.

Address: EU reflects Europe, not the European Union

The type “Conference Proceedings” are ONLY used for oral and poster presentations, and shorter meeting reports and are not taken into consideration for statistical analysis. Important conference proceedings (that should be included in the statistical analysis) are placed in “Books” or “Book chapters” or “Journal”.

The type “Report” are only used for reports which should not be taken into account in the statistical analysis.

EPOCA keywords

epoca paper
epoca oral
epoca poster
epoca thesis
epoca (newsletters, FAQ etc., products which are not peer-reviewed papers)

oa-icc

Comments, problems, missing references?
We are grateful for suggestions for improvement. Please send your feedback to OA-ICC Project Officer Lina Hansson (l.hansson@iaea.org).

How to cite the bibliographic database
To cite this database, please use similar wording to the example below:
"For this study we relied on the bibliographic database from the IAEA Ocean Acidification International Coordination Centre (OA-ICC) updated from (Gattuso and Hansson, 2011)."

On the OA-ICC

As research activities on ocean acidification and related stressors continue to develop, there is a growing need for international collaboration and coordination. Following a call by leading scientists for an international effort to coordinate, promote and facilitate science and related activities concerning ocean acidification, the Ocean Acidification International Coordination Centre (OA-ICC) was established by the IAEA, with direct and in-kind contributions from several of its Member States and key international projects. The OA-ICC promotes overarching international activities to serve not only the scientific community but also science users, including policy makers, media, and the general public. Among its activities, the OA-ICC is helping to establish an international observing OA network, promoting joint use of research platforms and experiments, stimulating collaboration between natural and social sciences, facilitating updates to recommendations for best practices, building science capacity especially in developing countries, and communicating science to non-scientists. Its related science products include

(1) the *OA-ICC news stream* (news-oceanacidification-icc.org) that informs scientists of recent publications, media coverage, meeting announcements, and jobs;

(2) the *OA-ICC data compilation on the biological response to ocean acidification* that provides easy access to regularly updated experimental data (http://tinyurl.com/oaicc-data) and

(3) the *OA-ICC bibliographic database* with currently more than 2000 references that include citations, abstracts and keywords to simplify searches and bibliographic statistical analysis.

For more information about the OA-ICC and its activities, please refer to the OA-ICC web site (www.iaea.org/ocean-acidification).

Reference:
Gattuso J.-P. & Hansson L., 2011. Ocean acidification: background and history. In: Gattuso J.-P. & Hansson L. (Eds.), *Ocean acidification*, pp. 1–20. Oxford: Oxford University Press.