

ASLO

LIMNOLOGY AND OCEANOGRAPHY

# e-Lectures

## How to Document Ocean Acidification Data

Li-Qing Jiang

Krisa M. Arzayus

Jean-Pierre Gattuso

Hernan E. Garcia

Cynthia Chandler

Alex Kozyr

Yan Yang

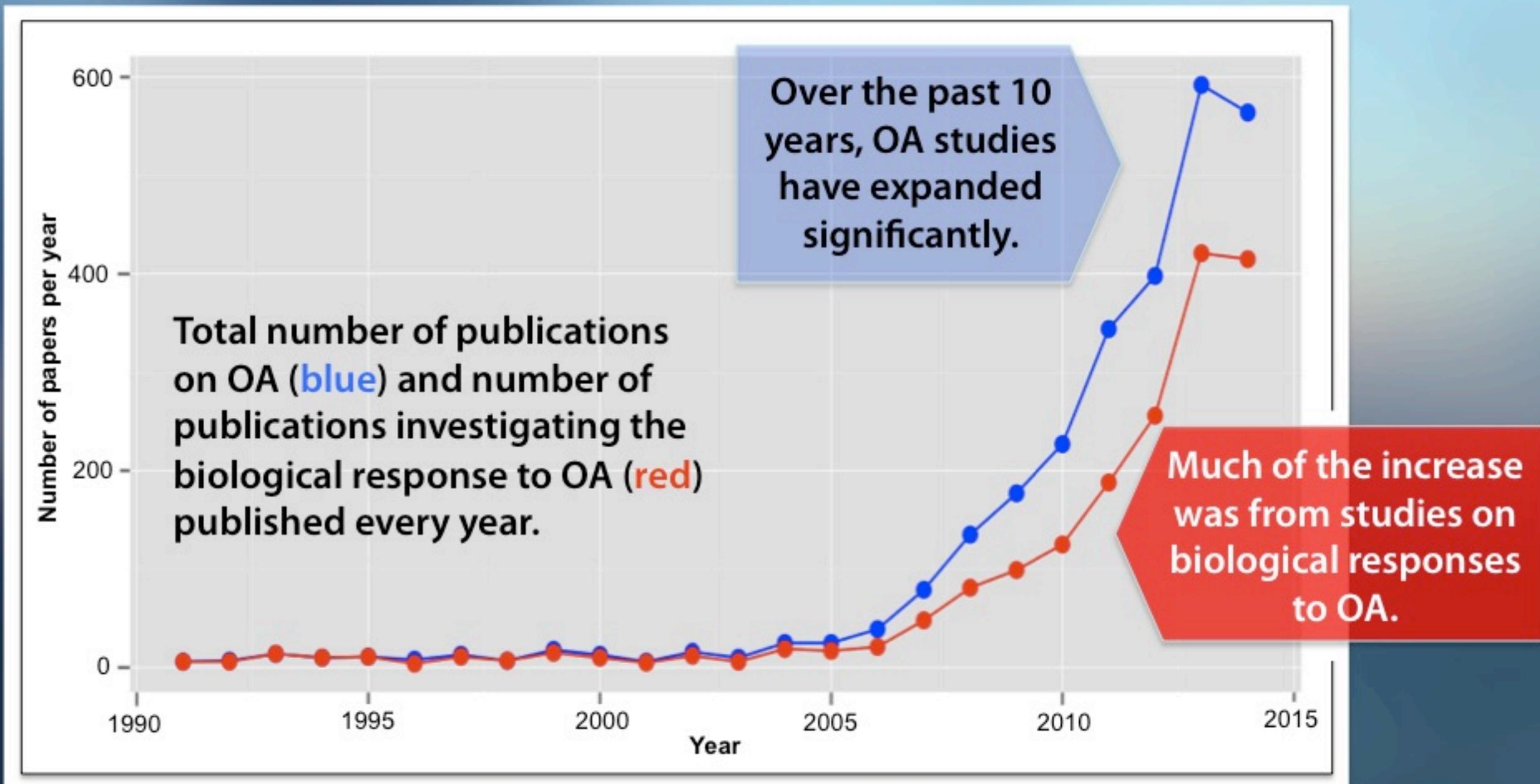
Rob Thomas

Brian Beck

Tobias Spears

ASLO e-Lectures

# The need for an OA metadata template



Gattuso & Hansson (2011)

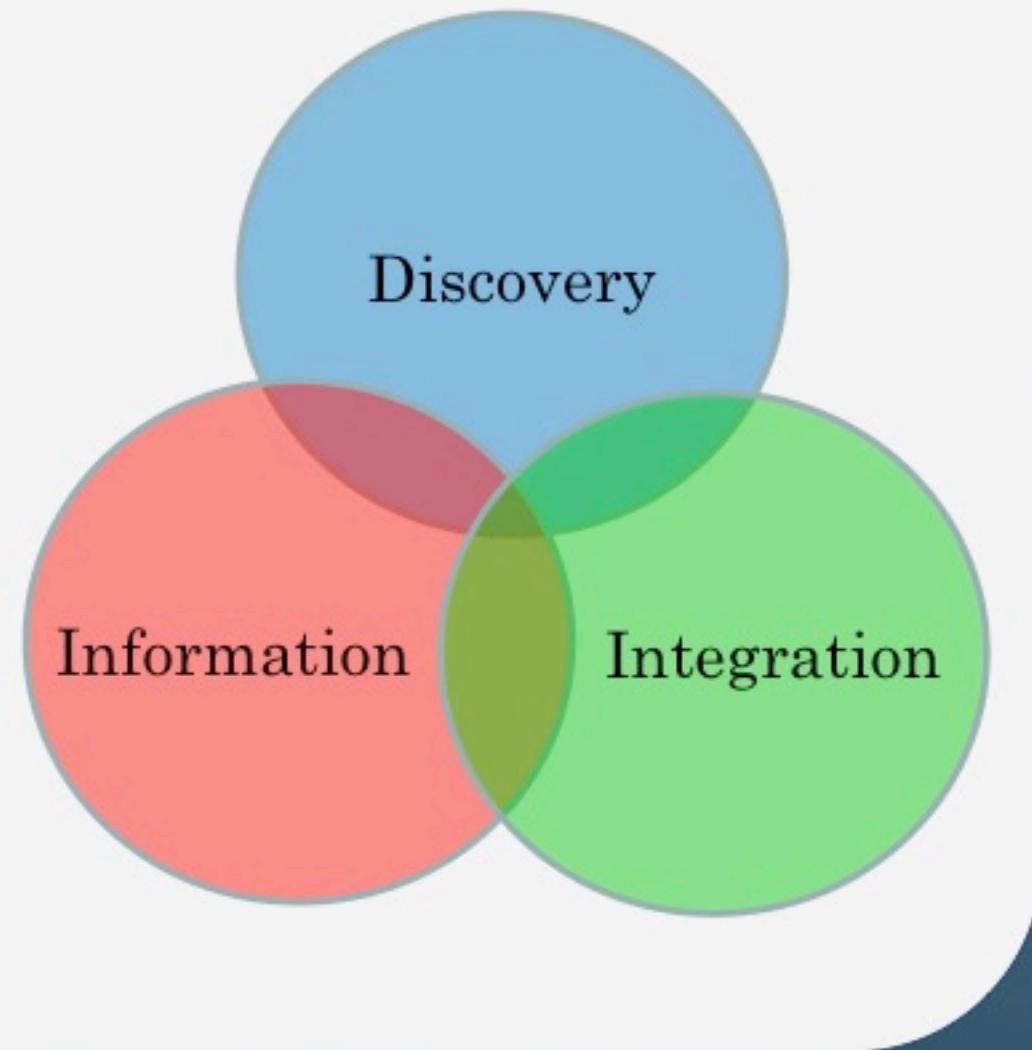
There is an urgent need to develop an OA metadata template to facilitate archiving and access to these data.

# Role of metadata in data management

Metadata is critical to **data discovery** by enabling the data to be found through relevant criteria.

Metadata helps to **document information** about the data sets in consistent and standard ways.

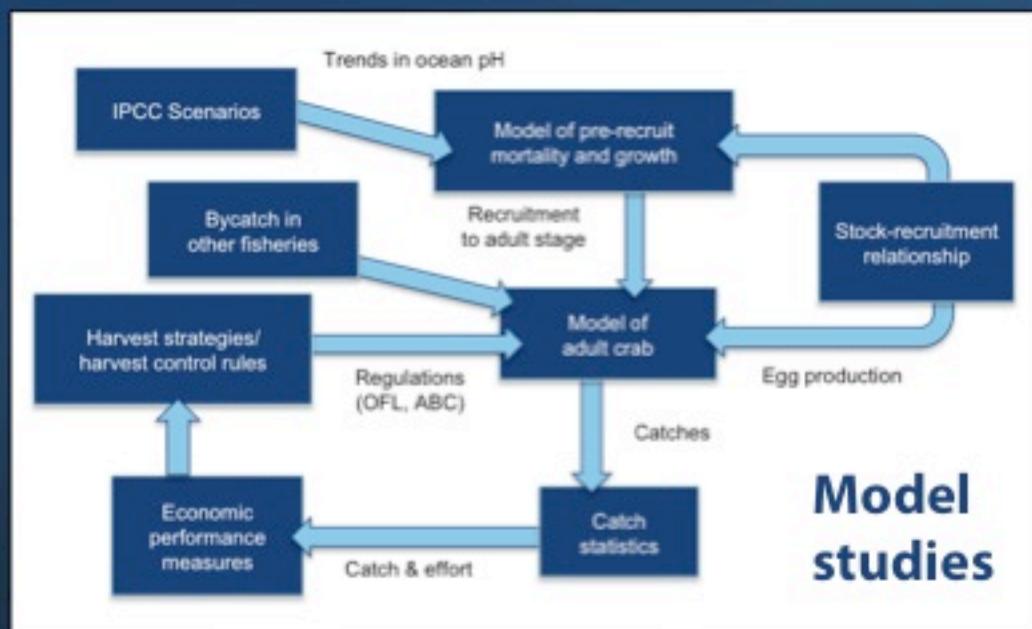
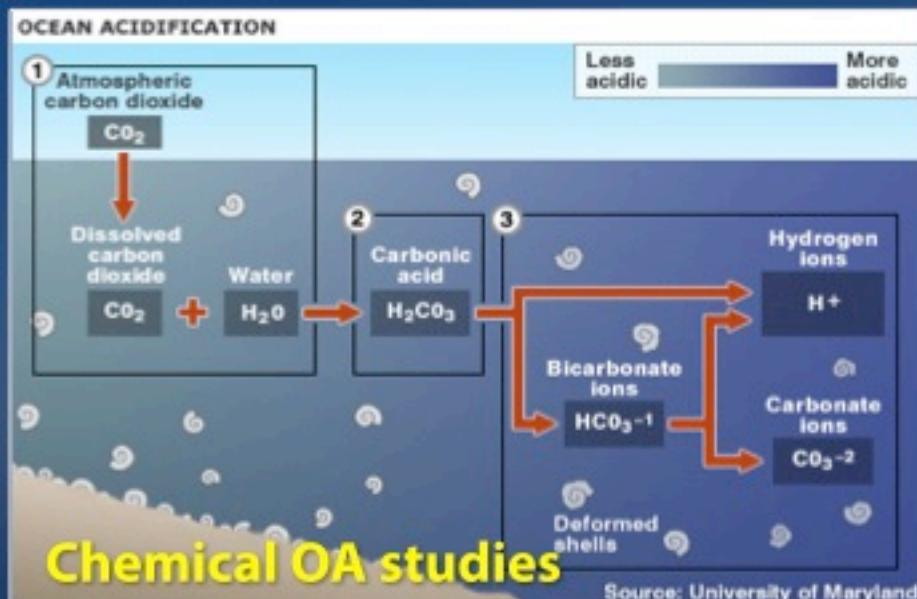
Metadata plays an important role in **facilitating data interoperability**, and **integrating legacy data**.



# A universal template for OA studies

OA covers a wide range of subject areas, including chemical OA studies, biological monitoring, physiological response experiments, model studies, etc.

If a metadata template can be constructed to apply to many types of OA data sets, the OA data management effort will be much more effective.



# OA metadata components

**Title**

Investigators

**Abstract**

Type of study

**Temporal coverage**

Spatial coverage

**Geographic names**

Location of organism collection

Platforms (e.g., research vessels)

Variable metadata cluster

**Publications describing the data set**

Supplementary information

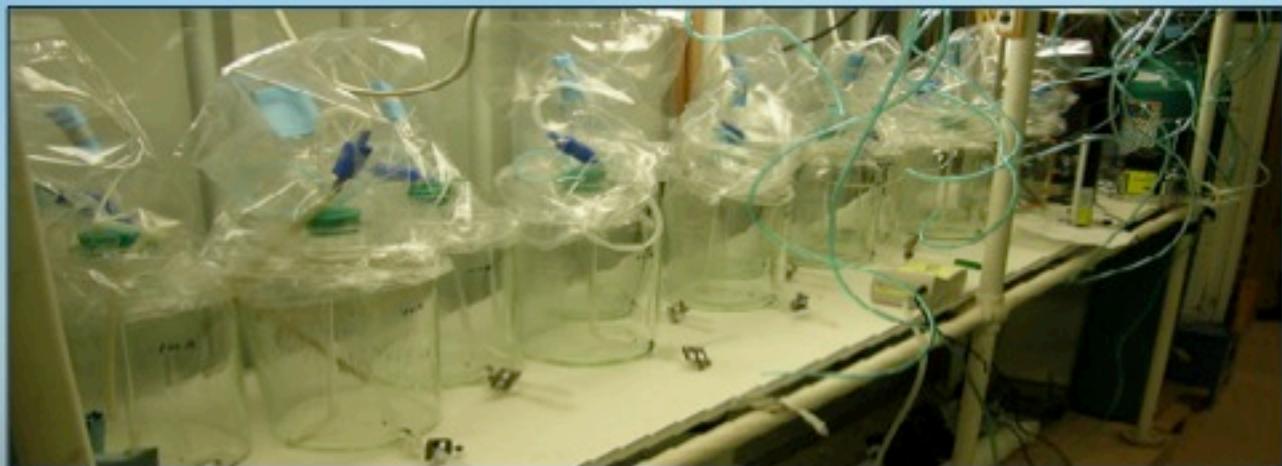
1	No	Metadata element name
2	1	Submission Date
3	2	Identification no. of related data sets
4	3	Investigator-1 name
5	4	Investigator-1 institution
6	5	Investigator-1 address
7	6	Investigator-1 phone
8	7	Investigator-1 email
9	8	Investigator-1 researcher ID
10	9	Investigator-1 ID type (ORCID, Researcher ID, etc.)
41	40	Spatial reference system
42	41	Geographic names
43	42	Location of organism collection
44	43	Funding agency name
45	44	Funding project title
46	45	Funding project ID (Grant no.)
47	46	Research projects
48	47	Platform-1 name
49	48	Platform-1 ID
50	49	Platform-1 type
51	50	Platform-1 owner
52	51	Platform-1 country
67	66	References
68	67	Supplemental information
69	68	DIC: Variable abbreviation in data files
70	69	DIC: Observation type

# In-situ/Manipulation/Response

In ocean acidification (OA) studies, variables often fall into these categories:



**In-situ:** Some variables are monitored directly in the field, or collected from the field and measured in the lab later. They fall into the category of in-situ observations.



**Manipulation condition:** Carbon-related variables, e.g., pH, partial pressure of carbon dioxide ( $p\text{CO}_2$ ), etc. are often manipulated to simulate future OA conditions.



Arctic Monitoring and Assessment Programme (AMAP)

**Response variable:** Organism related variables, e.g., shell dimensions, calcification rate, growth rate, and larval survival rate, are monitored to understand the responses of the organisms to ocean acidification.

# Spatial Coverage

**TYPES OF STUDY:**

CTD profile; discrete sampling;

**TEMPORAL COVERAGE:**

START DATE: 8/12/2011

END DATE: 8/30/2011

**SPATIAL COVERAGE:**

NORTH BOUND: 48.38

WEST BOUND: -127.55

EAST BOUND: -117.75

SOUTH BOUND: 31.95

**GEOGRAPHIC NAMES:**

U.S. West Coast California Current System; North Pacific Ocean;

**LOCATION OF ORGANISM COLLECTION:**

**Bounding box**

**Geographic names**

**Location of organism collection**

**PLATFORMS:**

WeComa (ID: 32WC);

***"Location of organism collection"*** is used to document where the organisms are collected.

# EXPOCODE, Section, Cruise ID

**EXPOCODE** consists of the four-digit *International Council for the Exploration of the Sea* (ICES, <http://vocab.ices.dk>) ship code and the date of the first day of the cruise in the YYYYMMDD format.

**EXPOCODE** 32P020130821

**Cruise ID** MT901, A16N\_2013

**Section** A16N

**Examples**

**Cruise ID** is the particular ship cruise number, or other alias for the cruise.

**Section** is the identification code for a research cruise section or leg.