



Food and Agriculture Organization
of the United Nations

>> FAO Statistics Division

Caliper

UNCEISC meeting

Session: Modernization of Classifications

Friday 28 October 2022, online



Today

- Caliper – an overview
- Three highlights and one examples of use
- Ideas for future developments

The FAO platform for the dissemination of statistical classifications

<https://www.fao.org/statistics/caliper/>

-- Started in 2017, official FAO service in 2022 --

Complements the FAO catalogue “Methods and Standards”, by providing access to classifications contents (incl. correspondences)

<https://www.fao.org/statistics/standards/en/>

Functionalities: browsing, searching, download, query, online access, collaborative editing

faostat.org/statistics/caliper/web/



Food and Agriculture Organization
of the United Nations

Caliper - Statistical Classifications in a Linked Open World

HOME

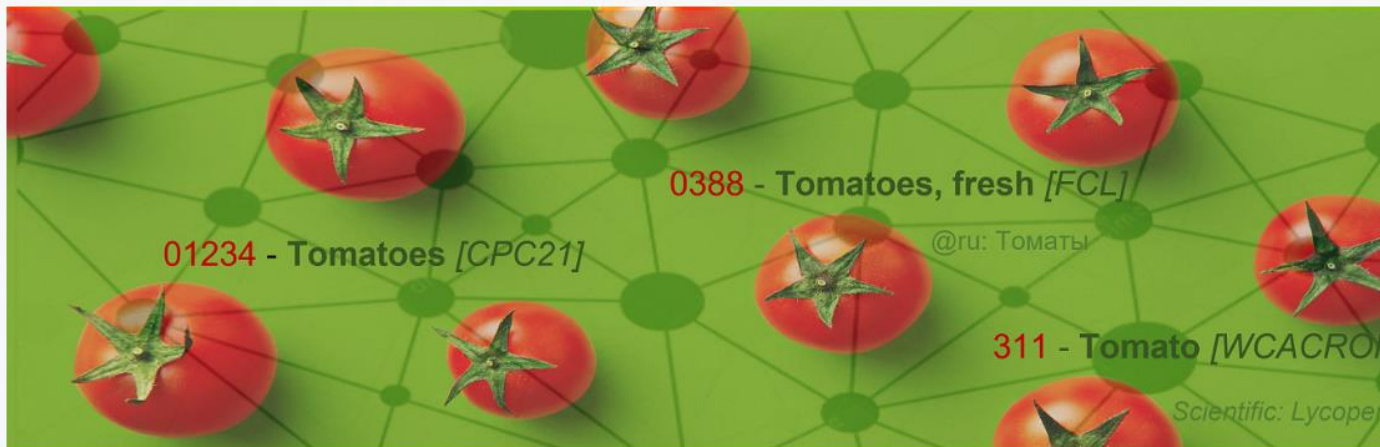
CLASSIFICATIONS

EXPLORE

DOWNLOAD

APIS & QUERIES

ABOUT ▾



Caliper is an FAO service for the dissemination of statistical classifications. Caliper exploits well-established web technologies for the purpose of making data available and understandable to the widest public possible.

Any statistical data relies on statistical classifications - sets of terms, also called "items", representing and defining the entities to which the data refers.

Caliper datasets

	Datasets
	CPC2.0 https://unstats.un.org/classifications/CPC/v2.0/
sets	CPC2.1 https://unstats.un.org/classifications/CPC/v2.1/
	FCL https://stats.fao.org/classifications/FCL/
	Forest_Products_2016 https://stats.fao.org/classifications/FPCD/v2016/
	ICC1.0 https://stats.fao.org/classifications/ICC/v1.0/
	ICC1.1 https://stats.fao.org/classifications/ICC/v1.1/
	ISICRev4 https://unstats.un.org/classifications/ISIC/rev4/
	WCA2020_Crops https://stats.fao.org/classifications/WCA2020/crops/





CPC2.0

Concept [Collection](#) [Scheme](#) [Property](#) [Alignments](#)

0114: Sorghum (en) <https://unstats.un.org/classifications/CPC/v2.0/0114>

Type skos:Concept

In Scheme The Central Product Classification (CPC) v2.0 (en)

0: Agriculture, forestry and fishery products (en)

01: Products of agriculture, horticulture and market gardening (en)

011: Cereals (en)

- 0111: Wheat (en)
- 0112: Maize (corn) (en)
- 0113: Rice (en)
- 0114: Sorghum (en)
- 0115: Barley (en)
- 0116: Rye (en)
- 0117: Oats (en)
- 0118: Millet (en)
- 0119: Other cereals (en)

012: Vegetables (en)

013: Fruit and nuts (en)

014: Oilseeds and oleaginous fruits (en)

015: Edible roots and tubers with high starch or inulin

016: Stimulant, spice and aromatic crops (en)

017: Pulses (dried leguminous vegetables) (en)

018: Sugar crops (en)

019: Forage products, fibres, living plants, cut flowers, tobacco, and natural rubber (en)

02: Live animals and animal products (excluding meat) (en)

03: Forestry and logging products (en)

04: Fish and other fishing products (en)

test (en)

0114

← → ↻ <https://stats.fao.org/caliper/browse/showvoc/#/search>

ShowVoc Datasets Search Alignments

Search

sorghum

Filters: Datasets Languages

32 matches in 6 datasets

CPC2.0

0114: Sorghum (en)
<https://unstats.un.org/classifications/CPC/v2.0/0114>
sorghum (en)

01141: Sorghum, seed (en)
<https://unstats.un.org/classifications/CPC/v2.0/01141>
this subclass includes: - sorghum, species of <i>sorghum</i>, grown specifically for seed purposes, whether or not processed this subclass does not include: - sorghum not grown specifically for seed purposes, cf. 01142 - sweet sorghum, <i>sorghum saccharatum</i>, cf. 01809 (en)

01142: Sorghum, other (en)
<https://unstats.un.org/classifications/CPC/v2.0/01142>
this subclass includes: - sorghum, species of <i>sorghum</i>, mainly <i>vulgare</i>, guineense, dura</i> this subclass does not include: - sorghum grown specifically for seed purposes, cf. 01141 - sweet sorghum, <i>sorghum saccharatum</i>, cf. 01809 (en)

CPC2.1

0114: Sorghum (en)
<https://unstats.un.org/classifications/CPC/v2.1/0114>
sorghum (en)

01141: Sorghum, seed (en)
<https://unstats.un.org/classifications/CPC/v2.1/01141>
this subclass includes: - sorghum, species of <i>sorghum</i>, grown specifically for seed purposes, whether or not processed this subclass does not include: - sorghum not grown specifically for seed purposes, cf. 01142 - sweet sorghum, <i>sorghum saccharatum</i>, cf. 01809 (en)

01142: Sorghum, other (en)
<https://unstats.un.org/classifications/CPC/v2.1/01142>
this subclass includes: - sorghum, species of <i>sorghum</i>, mainly <i>vulgare</i>, guineense, dura</i> this subclass does not include: - sorghum grown specifically for seed purposes, cf. 01141 - sweet sorghum, <i>sorghum saccharatum</i>, cf. 01809 (en)

23120.06: Flour of sorghum (en)



















Alignments

Source dataset: ISICRev4  

Table Graph

Dataset	Alignments	%
http://data.europa.eu/ux2/nace2/	996	
CPC2.1	2663	

Alignments

(en)		
 4311: Demolition (en)	<http://www.w3.org/2004/02/skos/core#exactMatch>	 54310: Demolition s
 5914: Motion picture projection activities (en)	<http://www.w3.org/2004/02/skos/core#exactMatch>	 96150: Motion pictu
 0121: Growing of grapes (en)	<http://www.w3.org/2004/02/skos/core#exactMatch>	 01330: Grapes (en)
 3315: Repair of transport equipment, except motor vehicles (en)	<http://www.w3.org/2004/02/skos/core#exactMatch>	 87149: Maintenance transport equipmen
 6621: Risk and damage evaluation (en)	<http://www.w3.org/2004/02/skos/core#exactMatch>	 71620: Insurance cla (en)
 9522: Repair of household appliances and home and garden equipment (en)	<http://www.w3.org/2004/02/skos/core#exactMatch>	 87151: Maintenance electrical household
 0892: Extraction of peat (en)	<http://www.w3.org/2004/02/skos/core#exactMatch>	 11050: Peat (en)
 6430: Trusts, funds and similar financial entities (en)	<http://www.w3.org/2004/02/skos/core#exactMatch>	 71702: Services of h assets of trusts and entities (en)

grapes

Mapping

CROPS

ICC 1.1

The Indicative Crop Classification for the Agricultural Census (ICC) v1.1

URI: <https://stats.fao.org/classifications/ICC/v1.0/scheme>

Correspondences (alignments) with: ICC 1.0, FAO WCA Crops

Download classification only: CSV - JSON - JSON-LD - RDF/XML

Download correspondences:

- [ICC 1.1 > AGROVOC](#)
- [ICC 1.1 > CPC 2.1](#)
- [ICC 1.1 > CPC 2.1 Expanded for Ag.](#)
- [ICC 1.1 > WCA2020 Crops](#)
- [ICC 1.1 > ICC 1.0](#)

stats.fao.org/caliper/sparql/AllVocs

```
https://stats.fao.org/caliper/sparql/AllVocs/
1 PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
2 PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
3 PREFIX skos: <http://www.w3.org/2004/02/skos/core#>
4 SELECT ?concept ?code ?enlabel
5 WHERE {
6   ?concept a skos:Concept .
7   ?concept skos:notation ?code .
8   ?concept skos:inScheme <https://stats.fao.org/classifications/FPCD/v2016/scheme> .
9   ?concept skos:broader+ <https://stats.fao.org/classifications/FPCD/v2016/08> .
10  ?concept skos:prefLabel ?enlabel .
11  FILTER (lang(?enlabel)="en")
12 } ORDER BY ?code
```

Table Raw Response Pivot Table Google Chart Geo

Showing 1 to 50 of 66 entries (in 0.123 seconds)

concept	code	enlabel
https://stats.fao.org/classifications/FPCD/v2016/081	081	Mechanical wood pulp
https://stats.fao.org/classifications/FPCD/v2016/081-1	081.1	Stone groundwood
https://stats.fao.org/classifications/FPCD/v2016/081-11	081.11	Stone groundwood, unbleached
https://stats.fao.org/classifications/FPCD/v2016/081-111	081.111	Stone groundwood, unbleached, conifero
https://stats.fao.org/classifications/FPCD/v2016/081-119	081.119	Other unbleached stone groundwood
https://stats.fao.org/classifications/FPCD/v2016/081-12	081.12	Stone groundwood, bleached
https://stats.fao.org/classifications/FPCD/v2016/081-121	081.121	Stone groundwood, bleached, coniferous
https://stats.fao.org/classifications/FPCD/v2016/081-129	081.129	Other bleached stone groundwood
https://stats.fao.org/classifications/FPCD/v2016/081-2	081.2	Pressurised stone groundwood

Sample SPARQL queries

We have prepared some queries for you to use as models. Please feel free to use them in your information system, or s

HOWTO use the samples:

1. Copy-paste your query of interest in the Caliper SPARQL endpoint: <https://stats.fao.org/caliper/sparql/AllVocs>
2. **Replace the placeholder(s) in bold** as appropriate.
 - Typically, the placeholder should be replaced with a specific scheme URI. The list of all classifications URIs you c
3. Click on the triangle to the right to run the query.

Note: In some cases, there is no need for placeholders, then you can fire the query directly to the endpoint by clicking o

General on Caliper

- [Get all concept schemes in Caliper \[RUN\]](#)
- [Get all namespaces used in Caliper \(ending with "#"\) \[RUN\]](#)

Classifications' metadata

- [Get all data about a concept scheme](#)
- [Get all Dublin Core properties used of a given scheme](#)

Classifications' items

- [List all items in a given classification \(with code, EN label, URI; sorted by code\)](#)
- [List all pairs "item - parent" \(each with EN label and code\) \[run query on CPC2.1\]](#)
- [List all items in a given classification, below a given concept](#)
- [FPCD: All items below "Wood Pulp"](#)
- [Get classification levels of a given classifications \(with EN label and depth, sorted by depth\)](#)
- [Get classification levels of ICC1.1 \(with EN label and depth, sorted by depth\)](#)

Correspondences

- [ICC 1.0: Give me all mappings between ICC v1.0 and ICC v1.1 \(sorted by code of ICC v.10\) \[RUN\]](#)
- [Get all mappings from CPC 2.1 to CPA \[RUN\]](#)

Highlight 1/3 – An Open and FAIR approach

ABOUT ▾

OVERVIEW

DOCUMENTATION

FAQ

CONTACTS

Open technologies

Data standards

Documented data models

Common RDF model

The same basic modelling is used for all classifications. In essence, this relies on SKOS to model XKOS to model pieces of information that are specific to statistical classifications.

The SKOS backbone

Here a summary table of the SKOS elements used, together with the information they model:

Classification's elements	SKOS elements
Classification	<i>skos:ConceptScheme</i> (identified by a URI = unique http:// identifier, nor
Item	<i>skos:Concept</i> (identified by a URI = unique http:// identifier, nor
Code	<i>skos:notation</i> (its subject is a <i>skos:Concept</i>)
Item names	<i>skos:prefLabel</i> (its subject is a <i>skos:Concept</i> ; with language tag)
Explanatory note	<i>skos:scopeNote</i> (its subject is a <i>skos:Concept</i> ; with language tag)
Definition	<i>skos:Definition</i> (its subject is a <i>skos:Concept</i> ; with language tag)
Hierarchy: item A is more general than item B	URI_A <i>skos:broader</i> URI_B (subject and object are <i>skos:Concept</i>)
Hierarchy: B is more specific than A	URI_B <i>skos:narrower</i> URI_A (subject and object are <i>skos:Concept</i>)

Highlight #2/3 - Maintenance and governance



Web-based editing platform (VocBench):

Collaborative editing

Work is organized into “projects”. Users may be different in different projects. Users may belong to different organizations.

Formal editorial lifecycle

combines “roles” and “actions”. E.g. adding new item, approve..

Convenient read-only version (ShowVoc)

Editing integrated with discussion platform (“issue tracker”)

Highlight #2/3 cont'd – Maintenance and governance



An example of “issue” to be discussed: proposal for new codes in CPC

01961		Live plants; bulbs, tubers and roots; cuttings and slips; mushroom spawn	Official CPC2.1			
	01961.01	Roses, grafted or not	New expansion	Addition		0602.40
	01961.02	Rhododendrons and azaleas, grafted or not	New expansion	Addition		0602.30
	01961.09	Other live plants; bulbs, tubers and roots; cuttings and slips; mushroom spawn n.e.c.	New expansion	Addition		

Highlight #2/3 cont'd - Maintenance and Governance

Current project: TEST_Cate Global Data Management About VocBench

VocBench Data Metadata SPARQL Tools

Class Concept Scheme Collection Property Datatype

0192: Fibre crops (en)
0193: Plants and parts of plants used primarily in perfumery, in pharmacy, or for insecticidal, fungicidal or similar purposes (en)
0194: Beet seeds (excluding sugar beet seeds) and seeds of forage plants (en)
0195: Natural rubber in primary forms or in plates, sheets or strip (en)
0196: Living plants; cut flowers and flower buds; flower seeds (en)
01961: Live plants; bulbs, tubers and roots; cuttings and slips; mushroom spawn (en)
01962: Cut flowers and flower buds including bouquets, wreaths, floral baskets and similar articles (en)
01963: Flower seeds (en)
0197: Unmanufactured tobacco (en)
0199: Other raw vegetable materials, n.e.c. (en)
02: Live animals and animal products (excluding meat) (en)
03: Forestry and logging products (en)

01961: Live plants; bulbs, tubers an... <https://unstats.un.org/classifications/CPC/v2.1/> 01961

The Central Product Classification (CPC) v2.1 - Expanded for Agriculture and Rural Statistics (en)
The Central Product Cl:

CC List for VB3 resources Suggested expansions

Created By CC Caterina C. on Oct 27 Assigned to Unassigned
Start / Due Date Not set Priority None
Status No Progress

No description

skos:broader

0196: Living plants; cut

skos:prefLabel

<https://unstats.un.org/classifications/CPC/v2.1/01961> Manage Tags

ATTACHMENTS

Comments History

CC Caterina C. 5 minutes ago
VG: Suggested expansions for 01961 (Live plants; bulbs; tubers and roots; cutting and slips; mushrooms spawn)
01961.01 - Roses, grafted or not
01961.02 - Rhododendrons and azaleas, grafted or not
01961.09 - Other live plants; bulbs; tubers and roots; cuttings and slips; mushrooms spawn n.e.c.

CC Caterina C. in a few seconds
CC: Is that really needed??

Highlight #3/3 - Web of Classifications

Classifications are “naturally” connected in networks of correspondences. We can access them programmatically through “federated” queries

Consider:

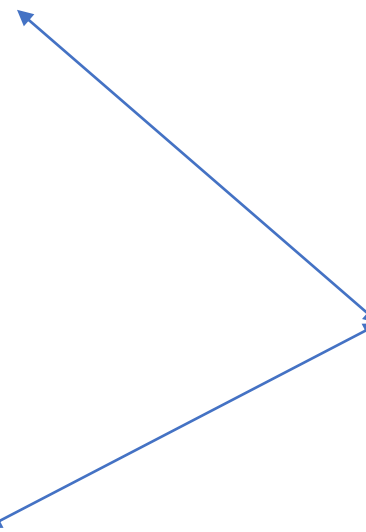
CPC and CPA

CPC and ICC

ISIC and NACE

FLC and AGROVOC

eurostat 



Example: ARIES for SEEA

MISSION

TECHNOLOGY

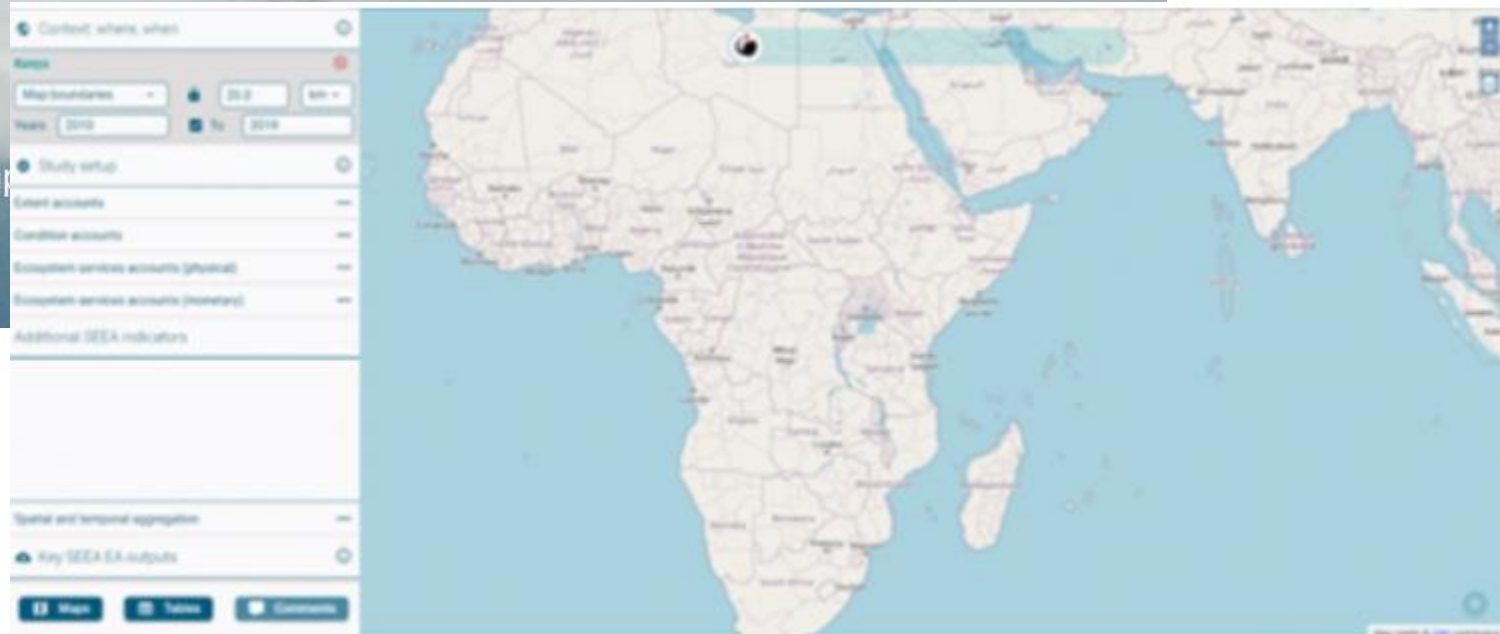
ARIES FOR SEEA ▾

NEWS



TRAINING ▾

ARIES for
a tool for rapid natural cap



Example: ARIES

```
1 private namespace im.authorities
2     "Example of no-op models using the default authorities";
3
4 // IUPAC chemical identity (uses NIH's services, often offline)
5 model IUPAC:water im:Volume within earth:AtmosphericBottomLayer earth:Region;
6
7 // GBIF species code
8 model each GBIF.SPECIES:2435035 biology:Individual;
9
10 // ICC classification through FAO's CALIPER
11 model CALIPER.ICC:1.02 agriculture:Yield;
12
13 // World Reference Base soil classification, parser is in alpha
14 model WKB: Haplic vertis
15
16 // ICC classification through FAO's CALIPER
17 model CALIPER.ICC:1.02 agriculture:Yield;
```

identity CALIPER.ICC:1.02
// Wor
model Maize
Part of observable CALIPER.ICC:1.02 agriculture:Yield

Ideas for future developments

Tighter integration with the FAO catalogue of “Methods and Standards”

On contents:

Already tested: WRB, FoodEx2, M49, ...

New candidates: WRB 2022, LCCS, ..

On features:

More export formats, e.g., SDMX

Integrated search/query classifications and documents (e.g., manuals) - planned development of VocBench

Test interagency collaborative editing of new/revised classifications?

END

