DIGIS and GEOROC 2.0

A Project towards Open Geochemical Data

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GEOROC

Geochemistry of Rocks of the Oceans and Continents

Database established by the Max-Planck Institute for Chemistry (MPIC)

Today:
- 19,650 papers
- 593,050 samples
- 1,980,080 analyses
- 28,768,500 single data values
- >2,600 citations in peer-reviewed publications

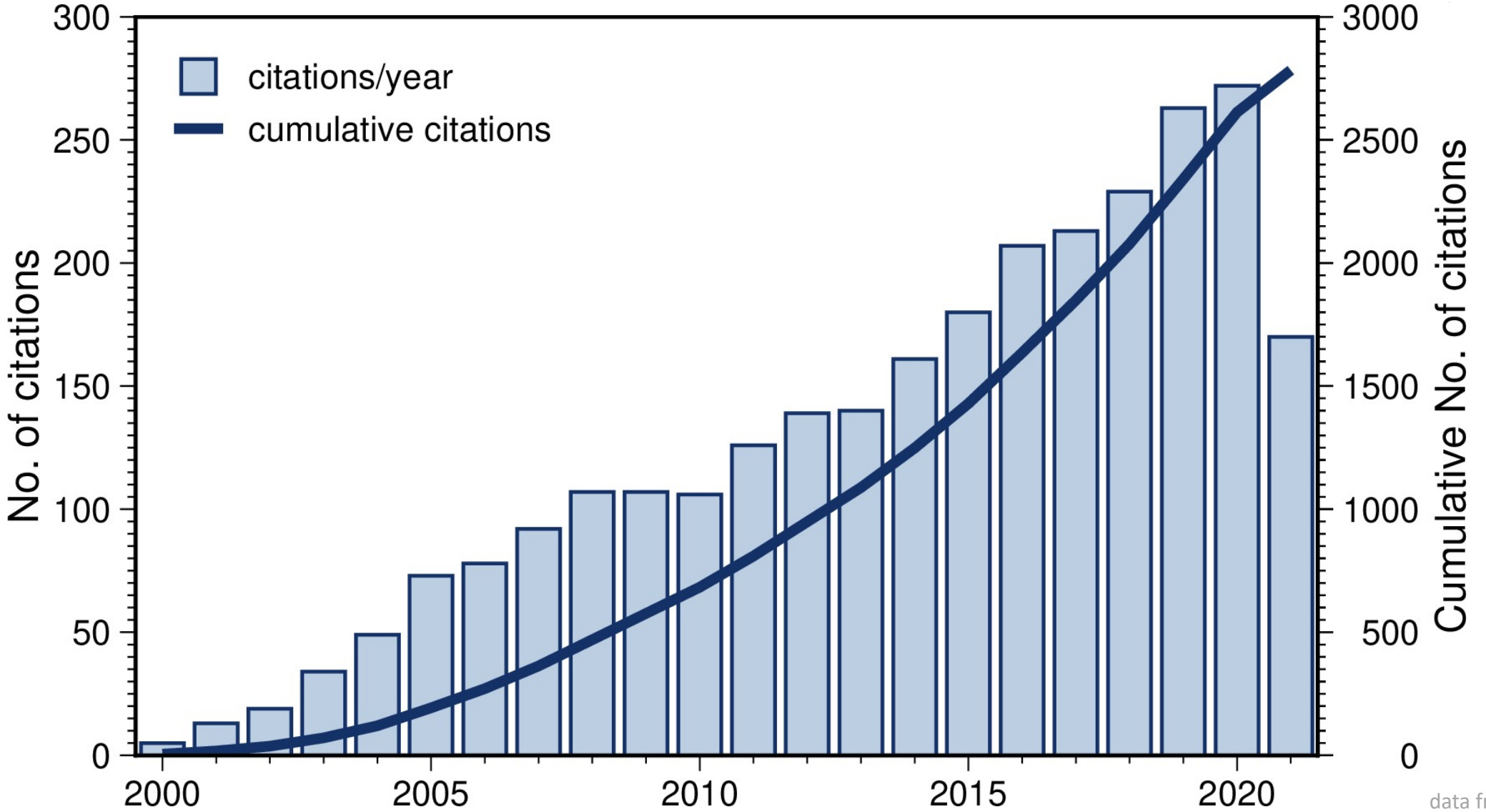
1998/99 — 2021

MAX-PLANCK-INSTITUT FÜR CHEMIE

Data from whole rocks, glasses, minerals and inclusions
- major and trace element concentrations
- radiogenic and nonradiogenic isotope ratios
- analytical ages

Increasing demand and database use from community

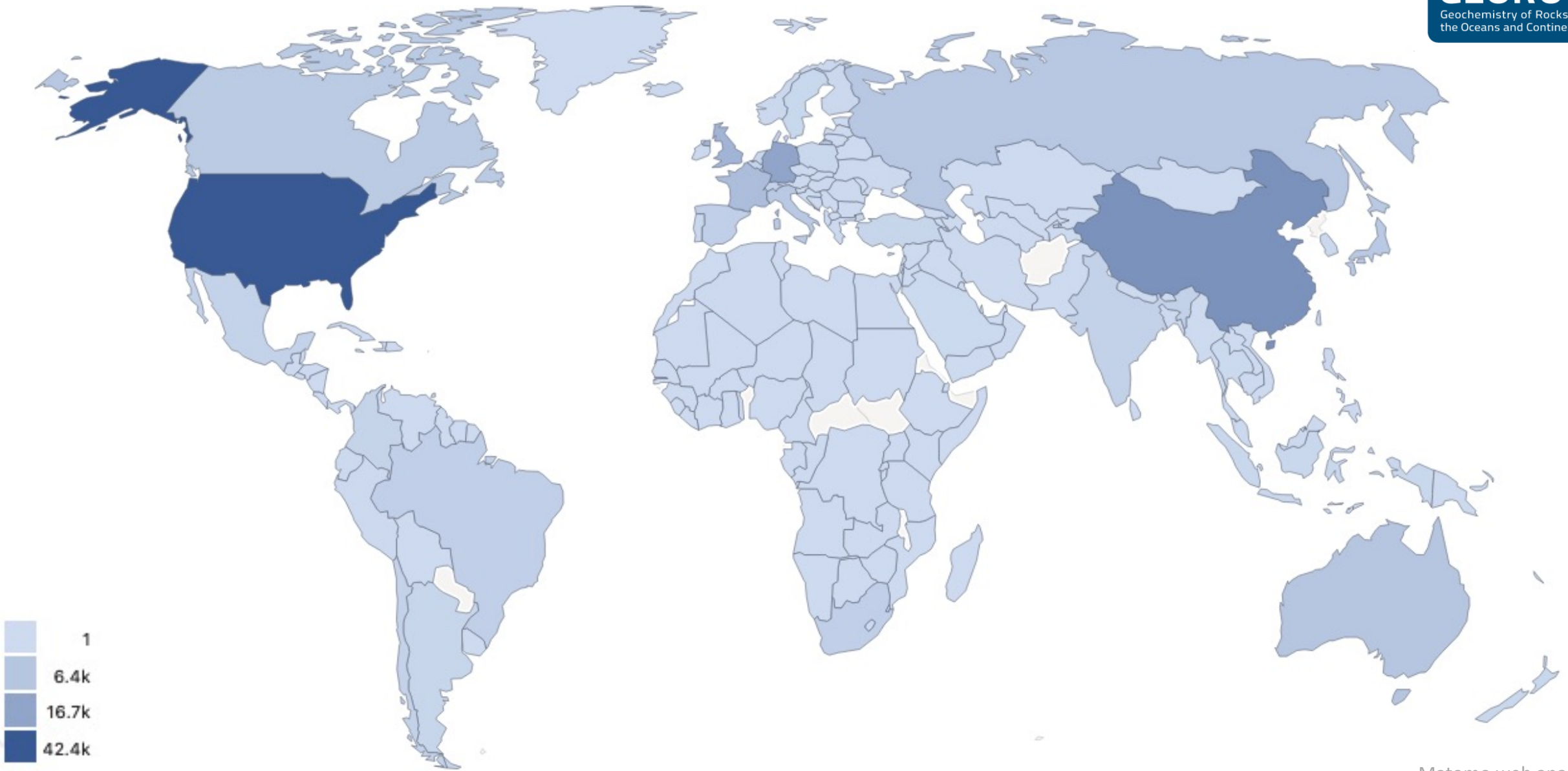
GEOROC



data from Google Scholar

190,989 visits between 19/08/2009 and 08/07/2021

GEOROC



Matomo web analytics

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1998/99 — 2000 — by 2017 — 2021

Collaboration with PetDB, e.g. common data model

Divergence of IT infrastructure between EarthChem and GEOROC

EARTHCHEM
Search. Synthesize. Contribute.


GEOROC 2.0
DATA ACQUISITION
FAIR DATA PRINCIPLES
CLIENTS
COMPUTER SEMANTICS
API DEVELOPMENT
WEB DEVELOPMENT
GLOBAL DATA HUB

GEOROC 2.0

Digital Geochemistry Infrastructure
for GEOROC 2.0

Findable

Accessible

Interoperable

Reusable

GEOROC 2.0

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- Additional external identifiers
  - IGSN
  - ORCID
  - Data DOI
- Improved metadata
  - Sample metadata (e.g. location)
  - Analytical metadata

GEOROC 2.0

Digital Geochemistry Infrastructure for GEOROC 2.0

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Reusable

- Improved web interface
  - Flexible search parameters
  - Online tools for visualisation, analysis etc
- Direct data access through API
- Documentation and guidelines for use, e.g. via Jupyter Notebooks

GEOROC 2.0

Digital Geochemistry Infrastructure for GEOROC 2.0

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Interoperable

Reusable

- Common standards/framework
  - Metadata
  - Vocabularies, ontologies
- ODM2-based data model
- align with EarthChem, MetBase, NFDI4Earth
- OneGeochemistry

GEOROC 2.0

Digital Geochemistry Infrastructure for GEOROC 2.0

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Interoperable

Reusable

- Consistent metadata following international standards
- Globally unique identifiers
- Options to save search queries, with timestamp
- Repository for data upload with DOI registration

International Cooperation GEOROC 2.0

Digital Geochemistry Infrastructure for GEOROC 2.0

- **DIGIS – EarthChem**: Coordinating data models, APIs & data content
- **NFDI4Earth:** Interest Group for Standardisation of Geochemical Data
- **OneGeochemistry**: International initiative to advance data standards and best practices in geochemistry

GEOROC 2.0

Digital Geochemistry Infrastructure for GEOROC 2.0

from April 2021

Migration of GEOROC database to Göttingen: service to community unchanged

Community-building, establishment of the DIGIS Advisory Board

Design of new database and metadata structures

by October 2021

Minor modifications to GEOROC: data upload with DOI assignment now possible

by January 2022

Alpha version of GEOROC 2.0 developed including new metadata structure and access via API

Community input and testing

DIGIS:
Digital Geochemical Data Infrastructure for GEOROC 2.0

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