The African Open Science Platform (AOSP)

Ina Smith & Susan Veldsman
Academy of Science of South Africa
Agenda

• About the African Open Science Platform (AOSP)
• Accord on Open Data in a Big Data World
• Focus areas of AOSP
• Rationale for AOSP
• Closing Remarks
About the African Open Science Platform (AOSP)

- Funded by the National Research Foundation (NRF) (SA Dept. of Science and Technology)
- Directed by CODATA (ICSU)
- Managed by Academy of Science of South Africa (ASSAf)
  - Through ASSAf hosting ICSU Regional Office for Africa (ICSU ROA)
About ICSU & CODATA

• **ICSU**: International Council for Science – consists of 17 interdisciplinary bodies e.g. CODATA

• **CODATA**: Committee on Data for Science and Technology

• **Mission**: Strengthen international science for the benefit of society by promoting improved scientific and technical data management and use.
About ASSAf (1)  

- **Recognise** scholarly achievement & excellence  
- **Mobilise members** in the service of society  
- Conduct **systematic & evidence-based studies** on issues of national importance (ASSAf OA Repository)  
- Promote the development of an **indigenous system** of South African research  
- **Publish science-focused journals**  
  - Training in Open Journal Systems (OJS)  
  - Criteria for high quality OA journals  
  - Ambassador for Directory of Open Access Journals (DOAJ)

http://www.assaf.org.za
About ASSAf (2)  http://www.assaf.org.za

- Develop productive **partnerships** with national, regional and international organisations to building capacity within the National System of Innovation (NSI)

- Create diversified **sources of funding** for sustainable functioning and growth of a national academy

- **Communicate** with relevant stakeholders
  - Association of African Universities (AAU) DATAD-R harvester of OA repositories
  - Evaluation instrument – harvesting IRs adhering to criteria for best practice (ISO 16363, Data Seal of Approval etc.)
AOSP Governance

- Advisory Council (Chair: Prof Khotso Mokhele)
  - Terms of Reference
- Technical Advisory Board
  - Terms of Reference
- Platform Office (ASSAf) & ICSU/CODATA Office
  - CODATA Executive Director (Dr Simon Hodson)
  - 2x Senior Project Officers (Ina Smith & Susan Veldsman)
  - 1x Junior Project Officer (*In process*)
Key Stakeholders

- ICSU
  - Regional Office for Africa (ROA)
  - Committee on Data for Science and Technology (CODATA)
  - World Data System (WDS)
- The World Academy of Sciences (TWAS)
- Research Data Alliance (RDA)
- Association of African Universities (AAU)
- Network of African Science Academies (NASAC)
- African Research Councils (incl. DIRISA, funders)
- African Universities
- African Governments
- NRENs (Internet Service Providers for Education)
- Other
Accord: Open Data in a Big Data World

- Values of open data in emerging scientific culture of big data
- Need for an international framework
- Proposes comprehensive set of principles
- Provides framework & plan for African data science capacity mobilization initiative
- Proposes African Platform
Open Science Defined (1)

“Open Science is the practice of science in such a way that others can collaborate and contribute, where research data, lab notes and other research processes are freely available, under terms that enable reuse, redistribution and reproduction of the research and its underlying data and methods.” - FOSTER Project, funded by the European Commission.
Open Science Defined (2)

“Open Science moves beyond open access research articles, towards encompassing other research objects such as data, software codes, protocols and workflows. The intention is for people to use, re-use and distribute content without legal, technological or social restrictions. In some cases, Open Science also entails the opening up of the entire research process from agenda-setting to the dissemination of findings.” - Open and Collaborative Science in Development Network project, funded by IDRC.
Open Data, Open Science and the Research Lifecycle (Foster)

Homo naledi fossil discovery a triumph for open access and education
How To Print Your Own 3D Replicas Of Homo Naledi And Other Hominin Fossils

Kristina Killgrove
CONTRIBUTOR

I write about archaeology, anthropology, and the classical world.

FOLLOW ON FORBES (45)

Opinions expressed by Forbes Contributors are their own.

Citizen Science
About Climate at SAWS

Our Climate Databank

The South African Weather Service collates, maintains and runs a quality control process of South Africa’s meteorological and climatological data and related information. This archived data consists of:

1. Daily rainfall values since 1836
2. Daily surface observations for all stations, but for selected stations since 1884
3. Hourly data of wind direction, wind speed, temperature, humidity, pressure and sunshine from 1950 onwards
4. Upper air sounding data since 1961
5. Marine data from 1975 onwards
6. Forecasting data since 1990, satellite data since 1992 and radar data since 1994

Please access this Google Earth file to view the stations nearest where you want the information and their available data.

To order data or reports, send an e-mail to info4@weathersa.co.za

Drought Monitoring Desk

Here you will find information from our drought monitoring desk, so click here if you are looking for current drought indicators, predictors and rainfall information.

Our Scientific Publications

To view our publications list and to order publications click here.
Value of an African Platform (1)

- Collective view of Open Science activities
- Create awareness
- Showcase African research
- Contribute to global knowledgebase
- Increase return on investment (re-use)
- Identify lack of data/opportunities/gaps
- Identify needs e.g. skills development, infrastructure, policy formulation, etc.
- Act as conduit for links with international open data and open science programmes and standards
Value of an African Platform (2)

- Cross-use data across disciplines/studies
- Manage Intellectual Property (IP)
- Make data more discoverable/visible
- Encourage collaboration between scientific & private sectors, citizens
- Participate in collective problem-solving
- Allow verification of data
- Attract funders
5 Focus Areas

- Promote development & adoption of data policies, principles, practices, standards
- Determine infrastructure available
- Address issues of incentives, best practice, benefits
- Foster training & capacity building activities
- Create an awareness, stimulate dialogue (frontiers)
Challenges faced in terms of Data

"Without data you're just another person with an opinion."

- W. Edwards Deming
Most Scientific Research Data From the 1990s Is Lost Forever

A new study has found that as much as 80 percent of the raw scientific data collected by researchers in the early 1990s is gone forever, mostly because no one knows where to find it.

Data sharing: Make outbreak research open access

Nathan L. Yozwiak, Stephen F. Schaffner & Pardis C. Sabeti

25 February 2015

“We urge researchers working on outbreaks to embrace a culture of openness.”
Weekend reads: Fake scientists; fake research; major evils of modern research

The week at Retraction Watch featured the story of a graduate student who fought back after being caught in the middle of a fraud case, and the retraction of a hotly debated paper from Nature Cell Biology. Here's what was happening elsewhere:

- Borat, the prominent scientist: Making up names and CVs is one of the latest tricks to game scientific metrics, our co-founders write in Nautilus.
- “The new owner of two prominent chains of Canadian medical journals is publishing fake research for cash, and pretending it is genuine.” (National Post)
- “[S]elective reporting, selective citing, and flaws in quality assurance and mentoring are the major evils of modern research.” (Research Integrity and Peer Review)
- Grad students and postdocs are frequently the scapegoats in cases of fraud, and they have little in the way of recourse in the current system, note our co-founders in STAT.
- When it comes to failing to publish clinical trial data, Canadian institutions are among the worst. (Darryl Hol, CBC News)
“I have temporarily retracted the study thanks to the alert from Pierre. The blog is not peer reviewed, it is intended for early release of research that will later be sent for peer review.”
I regret that my coauthors and I omitted statistically significant information in our 2004 article published in the journal Pediatrics.

Managing Intellectual Property

Licenses

- Public Domain Dedication and License (PDDL) — “Public Domain for data/databases”
- Attribution License (ODC-By) — “Attribution for data/databases”
- Open Database License (ODC-ODbL) — “Attribution Share-Alike for data/databases”

Applying a License

For instructions on how to apply the licenses to your material please see each license’s home page.

Questions or suggestions? There is:

- A License FAQ (plus the General FAQ).
- A public mailing list, wiki page and contact email. See the contact page for details.
Massive flaw in old Ster-Kinekor website leaked clients' private data

Jan Vermeulen  9 March 2017

Ster-Kinekor’s old website, which was replaced in 2016, had a security flaw which leaked the private data of as many as 5.7 million users.

South African software developer Matt Cavanagh, who goes by RogueCode, discovered the vulnerability and alerted Ster-Kinekor to it.

Following the guidelines of responsible disclosure, Cavanagh gave Ster-Kinekor 28 days to fix the flaw before publicly exposing it.

Power & Internet Access

Africa
The Tech Continent: Africa's digital renaissance

Can the internet reboot Africa?

With smartphone use and web penetration soaring, Africa is set for a tech revolution - but only if its infrastructure can support it.
Incentives for Data Sharing

Sowing the seed: Incentives and motivations for sharing research data, a researcher’s perspective
How to define the evolving role of data scientist

Data science is a hot new career, but companies still aren't sure how to best use these employees. Here's how to hire data scientists with a clear strategy in place.
Stimulate Dialogue

INTERNATIONAL DATA WEEK
SEPTEMBER 11-17, 2016

DATA SCIENCE JOURNAL

MATTHEW MAYERNIK ET AL.
Building Geoscience Semantic Web Applications Using Establish Ontologies

About this Journal
The CODATA Data Science Journal is a peer-reviewed, open access, electronic journal, publishing papers on the management, dissemination, use and reuse of research data and databases across all research domains, including science, technology, the

ROUND TABLE ON DATA SCIENCE POST-SECONDARY EDUCATION

Enhancing Interoperability and Capabilities of Earth Science Data using the Observations Data Model 2 (ODM2)

Roundtable on Data Science Post-Secondary Education: Meeting #2
by Committee on Applied and Theoretical Statistics

Free
Status of Openness in Africa

- Open Institutional Repositories (74)
- Open Data Repositories (19)
- Open Educational Resources (30)
- MOOCs
- Open Access Journals
- Open Monographs
- Open Conference Proceedings
- Open Patents
- Open Source Software & Open Standards (incl. instruments)
- Open Access + Open Science Policies (SA, Botswana, Kenya)
- Open Science
  - Research Data Management Planning (RDM)
Survey: Status of Openness in Africa

• Preliminary findings from survey
• Launched 1 November 2016; due date 31 January 2017
• 35 responses received
Focus of data initiatives

69% = training; 60% = stewardship; 54% = policy
Funding of data initiatives

51% = host institution; 34% = international grant; 20% = national grant
AOSP Actions & Deliverables 2017

- SFSA Side Event & Panel Discussion (December 2016)
- Visit http://africanopenscience.org.za/
- Advisory Council & Technical Advisory Board
- Planning Phase

Next (Year 1):

- Expanding network, contacts, information on initiatives
- Identify/train representatives on national level (each country actively producing data, with research interest)
- Awareness - coordinate national workshops to introduce AOSP, open approaches – existing initiatives (conferences, w/s)
- Desktop research to identify initiatives on national level & populate database
- Engage with African stakeholders
Closing Remarks

- Collaborate & learn
- Data the new “gold” – predict trends
- Trusted data managed in trusted way
- Exploit data for the benefit of society
- Tell the African story, in an African way
Acknowledgments

• SA Dept. of Science & Technology
• National Research Foundation (NRF)
• CODATA
• All African partners
• Sci-GaIA
Thank you!

Ina Smith
ina@assaf.org.za

Susan Veldsman
susan@assaf.org.za