Working Group report

> **WG number : 6**
>
> **Targeted Societal Outcome : Societal Outcome 6: How to achieve - A transparent and accessible ocean with open and equitable access to data, information and technology and innovation**
>
> **WG chair(s) : Taco De Bruin, Anton Van de Putte**
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> **Ocean Decade Definition of the Outcome :**
> Inequalities in ocean science capacity and capabilities need to be eradicated through simultaneously improving access to and quality control of data, knowledge, and technology. This needs to be coupled with increased skills and opportunities to engage in data collection, knowledge generation and technological development, particularly in LDCs, SIDS and LLDCs. Increased dissemination of quality controlled and relevant ocean knowledge to the scientific community, governments, educators, business and industry, and the public through relevant and accessible products will improve management, innovation and decision-making contributing to societal goals of sustainable development.

Identify regional challenges that need to be overcome to achieve Southern Ocean priorities (*cfr* report) over the next 10 years in the context of your appointed Societal Outcome.

- *Research challenges (purely scientific)*

  - *R01. Spatial and temporal coverage of samples and data, especially in remote & inaccessible areas*
  - *R02. (Near) real-time availability of observational data for model input and decision making, including decision making for catastrophe/calamity mitigation*
  - *R03. Findability of data and research infrastructures*
  - *R04. Interoperability of data and research infrastructures*
  - *R05. Traceability (provenance) and quality of data*
  - *R06. Ensure ethical sharing and use of data*
  - *R07. Implementation of standardized, machine actionable Data Management Plans (DMPs)*
  - *R08. need for best practices to describe and annotate data, quality and provenance*
  - *R09 .Availability of reproducible workflows*
  - *R10. need for cross disciplinary research (and integrations of social Sciences and humanities)*

- *Logistical and technical challenges (funding, infrastructure, data accessibility, etc.)*

  - *L01. Access to research infrastructure, ships, equipment, computational power*
  - *L02. Access to data (e.g. through web services, GUI….)*
  - *L03. long-term financial sustainability of data resources and infrastructures including maintenance, upgrading and adaptation to new technology*
  - *L04. Interoperability of data and data standards*
  - *L05. discovery tools*

- *Uptake challenges (effective communication between stakeholders, engaging the public)*
  - *U01. Data Literacy (the ability to read, understand, create, and communicate data as information) among data managers, researchers, policy makers and stakeholders.*
  - U02. Need to allow time for the community to adopt the use of existing and new resources (maintenance of the resource, education and capacity building) (Global issues)
  - *U03. Availability of resources (ships, equipment, computational power)*
  - *U04. Availability of education resources*
  - *U05. access to Computational infrastructure*
  - *U06. Costs of ships and shipping time prohibits participation of researchers from many nations, waste of talent.*

Identify tangible actions that would be able to address these challenges. Delineate the scope of suggested actions (leading organisation, involved stakeholders, funding, timeline, implementation).

Action 1
Describe already-existing activities and stakeholders who are presently working towards resolving these challenges.

Name of Action	Improved access to Southern Ocean infrastructures
Related challenge	R02, L01, L03, U06
Short description	- Improve discoverability of information on what infrastructures, platforms and logistical capabilities available to science exist in the Southern Ocean, including technical capacities and available facilities. - Improve access to existing public information on logistics and infrastructure planning, including planned cruises and expeditions, through the further development of existing initiatives such as DueSouth and Polardex. - Improve discoverability and accessibility of existing public information on how to access infrastructures and logistics for science in the Southern Ocean, particularly for access to infrastructures belonging to other programmes or countries than that of scientists own affiliation. - Potential concrete actions/initiatives to discuss/develop: - a transnational access programme for research vessels in the SO - a central portal to information on access possibilities and requirements for different national infrastructures in the SO - development of standards for metadata describing infrastructures/observing assets and their capabilities in the SO (work with POAwg?). SO community to take a lead in defining standards for the broader polar community
Leading organisation	
Key stakeholders	COMNAP, SOOS, SCAR, EPB, EU-PolarNet
Timeline	
Resources	
Other comments	- Look to develop existing initiatives for international research infrastructure management and coordination in the Southern Ocean, and broader polar and marine communities. - Look to existing models for infrastructure coordination and transnational access in other contexts or regions that could be adopted in the Southern Ocean. - Actions for improved access to and coordination of infrastructures and logistics in the Southern Ocean should be driven by scientific needs

Action 2

Name of Action	Improved access to (computing) infrastructure (outside of the Southern Ocean)
Related challenge	ex: R1, U2, … (see above)
Short description	
Key stakeholders	SCAR, SCADM
Timeline	
Potential resources	
Other comments	

Action 3

Name of Action	Promote/Implement the Polar Data Policy Recommendations
Related challenge	ex: R1, U2, ... (see above)
Short description	Since 2019 Polar data committees linked to the Scientific Committee on Antarctic Research (SCAR), the International Arctic Science Committee (IASC), the Sustaining Arctic Observing Networks (SAON) initiative, and the Southern Ocean Observing System (SOOS), have stated an alignment of their data policies. This work is currently completed. The resulting data policy recommendation should underpin all data collection efforts in the Southern OCean for the Duration of the Ocean Decade
Key stakeholders	SCAR, SCADM, SOOS, researchers, policy makers
Timeline	
Potential resources	Alignment of Polar Data Policies - Recommended Principles
Other comments	

Action 4

Name of Action	Build the Southern Ocean data and Information ecosystem
Related challenge	ex: R1, U2, … (see above)
Short description	
Leading organisation	
Key stakeholders	SOOS, SCAR,SCAR Antarctic Biodiversity Portal, POLDER, CCAMLR, COMNAP,IODE, etc.
Timeline	
Resources	
Other comments	Based on schema.org and DataOne approach

Action 5

Name of Action	Promote Data Literacy
Related challenge	ex: R1, U2, … (see above)
Short description	Resources, training
Leading organisation	SCADM, SCAR
Key stakeholders	Data managers, researchers
Timeline	
Resources	
Other comments	

Action 6

Name of Action	Develop and Promote Data Best Practices
Related challenge	ex: R1, U2, … (see above)
Short description	
Leading organisation	
Key stakeholders	SCAR,
Timeline	
Resources	
Other comments	

Action 7

Name of Action	Develop and Promote Educational material
Related challenge	ex: R1, U2, … (see above)
Short description	
Leading organisation	
Key stakeholders	
Timeline	
Resources	
Other comments	

Rank suggested actions in order of priority while taking into account feasibility and timeline. The highest ranking actions will be included in the Southern Ocean Action Plan and will most likely require additional notes.

Order of priority	Action number & name
1	ex: Action 2
2	
3	
...	

If you have any further comments/suggestions, please describe them below.

*** Don't forget to have a look and comment on the reports of other Working Groups. ***