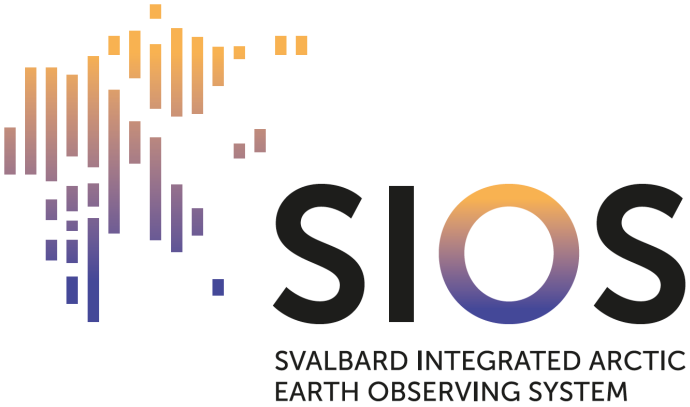

Technical documentation

SIOS Key Performance Indicators Specification

UPDATE 2022

Versions

Version	Date	Comment	Responsible
2	2022-11-17	Final version approved by SIOS General Assembly	Heikki Lihavainen
1.2	2022-10-26	Update with comments from BoD	Heikki Lihavainen
1.1	2022-09-16	Update for SIOS-KC 2022	Heikki Lihavainen
1	2019-01-15	Approved by GA	Heikki Lihavainen
0.4	22.12.2018	Revised to be approved by GA	Heikki Lihavainen
0.3	2018-10-09	Revised following discussions with working groups	Inger Jennings
0.2	2017-05-29	Revised version following discussions with KC	Inger Jennings
0.1	2017-05-18	Revised version following discussions during preparation of the ESFR proposal.	Øystein Godøy
0.0	2017-04-20	Initial draft based on a version prepared for the Norwegian Scientific Data Network project.	Øystein Godøy Torill Hamre

Contents

1. Introduction

1.1 Background

The vision for the Svalbard Integrated Arctic Earth Observing System (SIOS) is to be the leading long-term observing system in the Arctic to serve Earth system science and society. SIOS will systematically develop and implement methods for how observational networks are to be construed and thus become a leader regarding observational systems in the Arctic and Polar regions. The SIOS Data Management System (SDMS) Data Portal is the entry point to SIOS datasets. It offers a web interface that contains information about datasets (metadata). These metadata are harvested on a regular basis from data centres contributing to SIOS. These data centres manage the data on behalf of the owners/providers of the data. The mission of SIOS is to

- Develop an efficient observing system
- Share technology, knowledge experience and data
- Close knowledge gaps
- Decrease the environmental footprint of science

A major innovative element of SIOS is the Knowledge Centre (KC), which facilitates interaction between observation, modelling and process research, strategic processes, a service point to user communities and a platform for data handling and utilisation [3].

The first version of this document was based on a similar document developed for the SIOS project funded by the Research Council of Norway and has been piloted during the first four years of operational phase of SIOS. This update is based on experience of the current KPIs and Report of the ESFRI working group on monitoring of research infrastructures performance. The purpose is to update to make them more meaningful and measurable.

1.2 Scope

The purpose of this document is to identify a number Key Performance Indicators that can be used as metrics for evaluation of the operation. This evaluation shall cover both the progress of SIOS and user uptake of its core services.

1.3 Audience

This document is developed for both an internal and external audience. The internal audience is the development team and the external audience is the Research Council of Norway, the contributing data centres and the data providers and other stakeholders.

1.4 Applicable documents

1. Svalbard Integrated Arctic Earth Observing System – Preparatory Phase (SIOS-PP). Accessed 2017-04-18

2. Memorandum of Understanding for the Operational Phase. Accessed 2017-04-18
3. SIOS Statutes
4. Original KPI documentation
5. Report of the ESFRI Working Group on monitoring RIs performance (https://www.esfri.eu/latest-esfri-news/report-esfri-working-group-monitoring-ris-performance)

2. Key Performance Indicators definition

Key Performance Indicators (KPI) help define and measure progress towards achieving the goals and objectives of the system under development. KPIs are a tool supporting this process. In this context, KPIs should measure the uptake and relevance of the system developed in the user community as well as the timeliness and quality of the services provided to the user community. Produced KPIs should reflect the RACER criteria listed below.

Key characteristics of the KPIs considered in this context are:

- Relevant and consistent in relation to overall objectives and goals
- Accepted by the RI's and stakeholders
- Credible for non-experts
- Easy to monitor
- Robust

To support this, KPIs are divided into five main categories according to the system performance they are measuring:

- Achieving scientific excellence
- Enhancing Collaboration
- Economy
- Optimisation of data use
- Outreach

When properly developed, these KPIs are reported on annual basis and are part of SIOS annual reporting. No information related to a specific data centre, data provider or data consumer is made publicly available.

3. Key Performance Indicators for SIOS

The main objective of the selected KPIs is for the SIOS-KC to have a tool to follow up the goals and strategies agreed upon by the General Assembly of the consortium. It

is of vital importance that the KPIs can be shared with stakeholders, to supply them with useful information needed to assess whether the consortium is on track to achieve its goals.

The KPIs have been selected with the strategic goals and objectives of the consortium in mind. The KPIs must evolve along with the consortium and will, therefore, be subject to change.

3.1 Achieving scientific excellence

1. *Number of requests for access and services*

Rationale	Indicator of the attractiveness of the RI.
Measured through	Number of unique requests for access to infrastructure or data. Access is interpreted to include applications to different calls and other services run by SIOS. These will be reported separately
Target	
Reporting frequency	Annual

2. *Number of users served*

Rationale	Indicator to measure the size of the community served.
Measured through	Number of unique act of services.
Target	
Reporting frequency	Annual

3. *Number of publications*

Objective	Related primarily to the quantity of science enabled and in a secondary fashion to the quality of the science enabled.
Measured through	Number of publications acknowledging SIOS
Target	
Reporting frequency	Annual

3.2 Enhancing collaboration

4. Number of members

Rationale	Indicator provides a measure of the extent to which the RI may play a role to: help coordinate and facilitate integration level; to promote common standards, tools and practice; to expand the catalogue of activities available at RIs to new beneficiaries/members or partner countries
Measured through	Number of members
Target	TBC
Reporting frequency	Annual

5. Number of international initiatives, committees, working groups, panels, boards and external projects SIOS is involved

Rationale	Indicator provides a measure of how active role SIOS plays in pan-Arctic and European RI landscape
Measured through	Number active involvement in international initiatives, committees, working groups, panels, boards and external projects
Target	
Reporting frequency	Annual

3.3 Economy

6. Volume of member contributions and other income vs host contributions

Rationale	To measure the evolution of partner involvement to SIOS
Measured through	The annual financial reporting
Target	1:1 ratio between funding from RCN and partner contributions and other income (e.g., external projects)
Reporting frequency	Annual

7. Number of externally funded projects

Rationale	To measure the relevance of SIOS to the wider scientific community and the SIOS cooperation and commitment
Measured through	Number and Volume are reported
Target	
Reporting frequency	Annual

3.4 Optimisation of data

8. Number of available core data sets available through SDMS

Rationale	Indicator of the extent to which the data that SIOS and stakeholders identifies important is available
Measured through	Number of data sets available
Target	
Reporting frequency	Annual

9. Number of available core data sets over 5 years data series available through SDMS

Rationale	Indicator of the extent to which the long-term data sets that SIOS and stakeholders identifies important are available. This requires engagement from members.
Measured through	Number of long-term (+ 5 years) data sets available
Target	
Reporting frequency	Annual

3.5 Outreach

10. Number of media appearances

Rationale	To measure the visibility of SIOS
Measured through	Media surveillance
Target	TBC
Reporting frequency	Annual

11. Outreach via SIOS web and social media

Objective	To measure the visibility and relevance of information of SIOS in social media
Measured through	Number of (active) followers, impressions, number of shares and likes
Target	TBC
Reporting frequency	Annual