INTAROS

INTAROS WP2: exploitation of existing Arctic observing systems

Task 2.4: synthesis and recommendations

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Task 2.4: Synthesis reports

D2.10 Report on synthesis and recommendation from WP2

(Resp. MISU, contributions from WP2 leaders, Task leaders, Theme leaders, M30)

D2.11 Report on the maturity scores of existing observing systems in the Arctic

(Resp. NUIM, contributions from all WP2 partners, M30)

D2.10: work plan

- Collection of syntheses by topics (from theme leaders and key partners)
- First draft of the deliverable (by Michael and Roberta)
- Request of input to complete the missing parts in the first draft (Hanne and Carsten for ocean and sea ice, Torill for data management)
- Request of comments from all contributors
- Submission to external reviewer (Marianne Kroglund?)

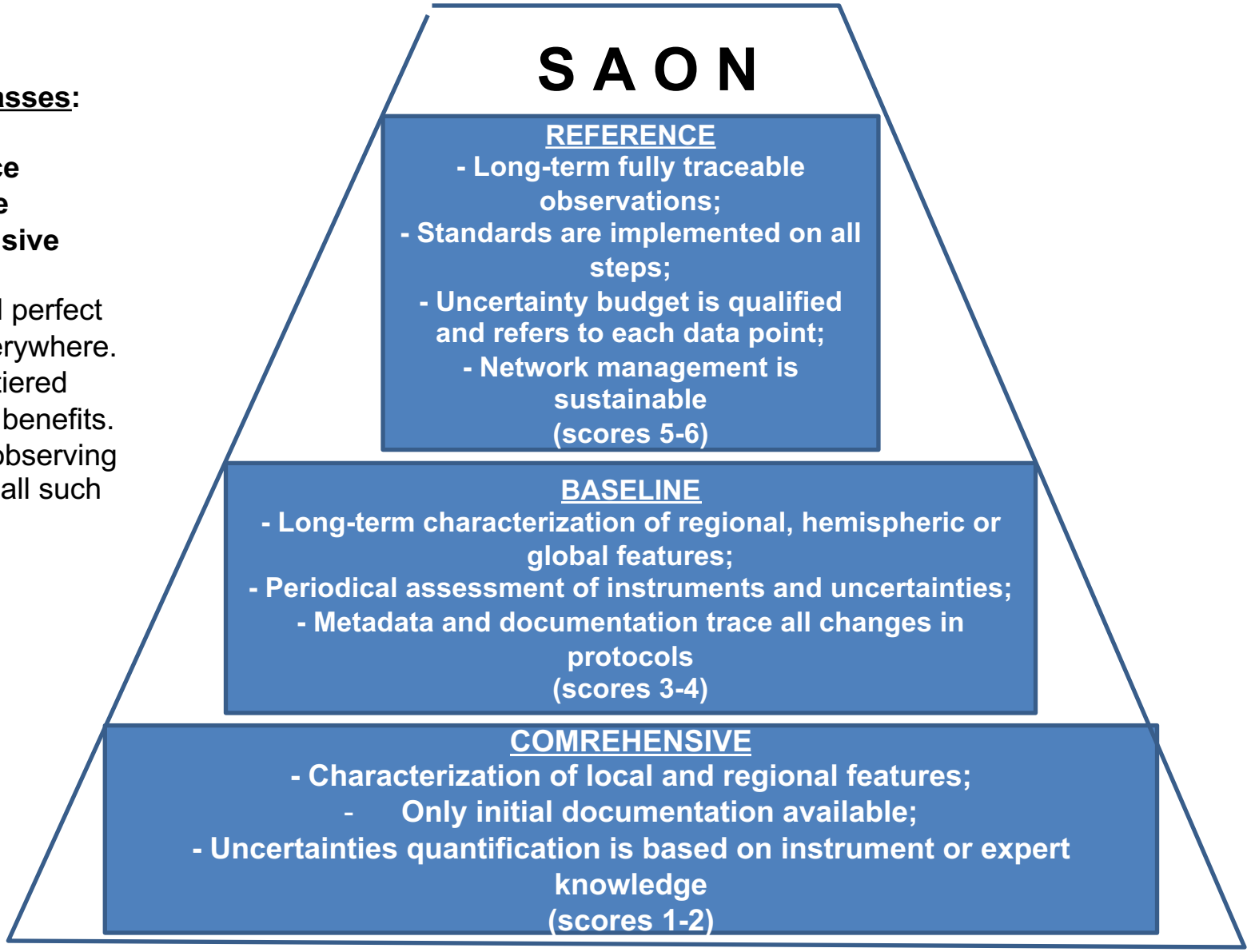
D2.11: Synthesis of the maturity assessment

Zakharova E., Thorne P. and many others

<u>3 Maturity classes</u>:

Reference
Baseline
Comprehensive

We do not need perfect observations everywhere. An explicitly tiered approach brings benefits. Does the Arctic observing system contain all such tiers?



43 networks : 16 - in ocean, 15 – in atmospheric and 12 – in terrestrial domain.

Class	Total	Oceanic	Atmospheric	Terrestrial
Comprehensive	18	8	7	3
Comprehensive-Baseline	14	5	5	4
Baseline	8	3	2	3
Baseline-Reference	1	0	0	1
Reference	2	0	1	1

1. **Most networks are Comprehensive**

2. Lack of Baseline and Reference networks

3. Two transitional classes indicate good candidates for upgrading

Terrestrial networks:
+ Most sustainable;
+ Advanced in Metadata and Documentation
+ Advanced in Data and Uncertainty management

Atmospheric networks :
- Less sustainable
- Highly heterogeneous in Data and Metadata

+ Focused networks are more advanced in all categories

Oceanic networks :
- Less sustainable
+ Reasonable level of Metadata and Data storage
- Initial level of Documentation and Uncertainty management

D2.11: Table of content

D2.10: Key messages

1. Multi-sphere observing systems are the most efficient, sustainable, and cost effective solution for future enhancement of the Arctic observing system. Co-located measurements are also essential to interpret climate changes and understand processes:

- Arctic land: instead of setting up new stations, add components to the existing ones (possibly autonomous instruments)
- Arctic Ocean: research cruises in the Central Arctic should have high quality set of instruments to serve both ocean atmosphere monitoring, independently on the purpose of the expedition.

2. Fields campaigns have low maturity scores in data handling (data management, documentation, metadata) and sustainablity, although the quality, resolution, and comprehensiveness of their observed datasets are higher than for data from established networks. This makes field campaigns the true ”reference systems” for the central Arctic. On the other hand, satellite products have lower accuracy but greater coverage: they represent the ”baseline system”.

3. The observing systems should be managed by overarching authorities (WMO, EU infrastructure etc.) that have already a well established mechanism to make national and international agreement to sustain the funding and provide guideline for the development of the observing systems.

D2.10: table of content

Expansion of the assessment

ACTIVITY GOING ON IN ArcticMap (funded by the Norwegian Directorate for Environment and Climate):

- Inclusion of the Arctic data and observing systems that were not addressed in the firsts reports
- The responses to the survey shall be automatically stored in a web based database, openly accessible, were the results of the assessment are shown through simple plots/tables.
- Whenever new responses are received, the assessment should be updated

This tool will enable the demonstration of the benefits (in terms of gap closure) of the enhancements and expansions of the observing systems.

PLAN

- Russian partners are already answering QA and QB
- Chinese partners will (?) do it (with some guidance)
- Invitation to the US community
- Collaboration with Arctic Observing Viewer (Bill Manley)

Peer-reviewed paper including the synthesis of the assessment:
It is very important to take into account the missing!

D2.10: Action list

WHO	WHAT	WHEN
Roberta and Michael	Add explanations and missing parts to the present draft of D2.10 and distribute to SC and contributors	By 10.05
Torill	Assess the data repositories and services on the basis of answers to QA question #). Write related (short!) section in D2.10	By 20.05
SC members and contributors	Read carefully D2.10, edit the tables (moving obs. systems in their relevant categories), and edit wherever you see that important considerations are missing. Propose solutions for figures and tables. Use track change, we want to recognize each concrete input to give the proper credit.	By 20.05
Roberta and Michael	Figures and tables finalization	By 31.05
Michael and Roberta	Text finalization	By 31.05

Expansion of the assessment

Workshop in the autumn?

- Chinese INTAROS partners already plan to visit FMI. They will soon start filling the questionnaire
- Russian INTAROS partners have started filling the questionnaires
- Invitation to other key USA/Canada collaborators?