Advancing Benefit-driven Approaches for Improving Arctic Observing and Data Systems with US AON

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About US AON & Benefit Assessment

The US AON is a collaborative initiative focused on Improving Arctic observations to better support societal benefits like climate resilience, disaster preparedness and food security. US AON has developed its Benefit Tool and Assessment methods to inform more strategic, equitable, and sustainable investments in Arctic observing. It uses relevant societal benefit frameworks as a performance metric for evaluating and improving Arctic observing & data systems.

How to Read a Benefit Assessment

Benefit Assessment diagrams, read from left to right, show how observing system inputs feed into data products then into applications, which ultimately provide societal benefits. Color coding indicates how well systems and products are performing (see key). Line thickness indicates the criticality of each input. Ratings are given for a particular context by an individual or small team.

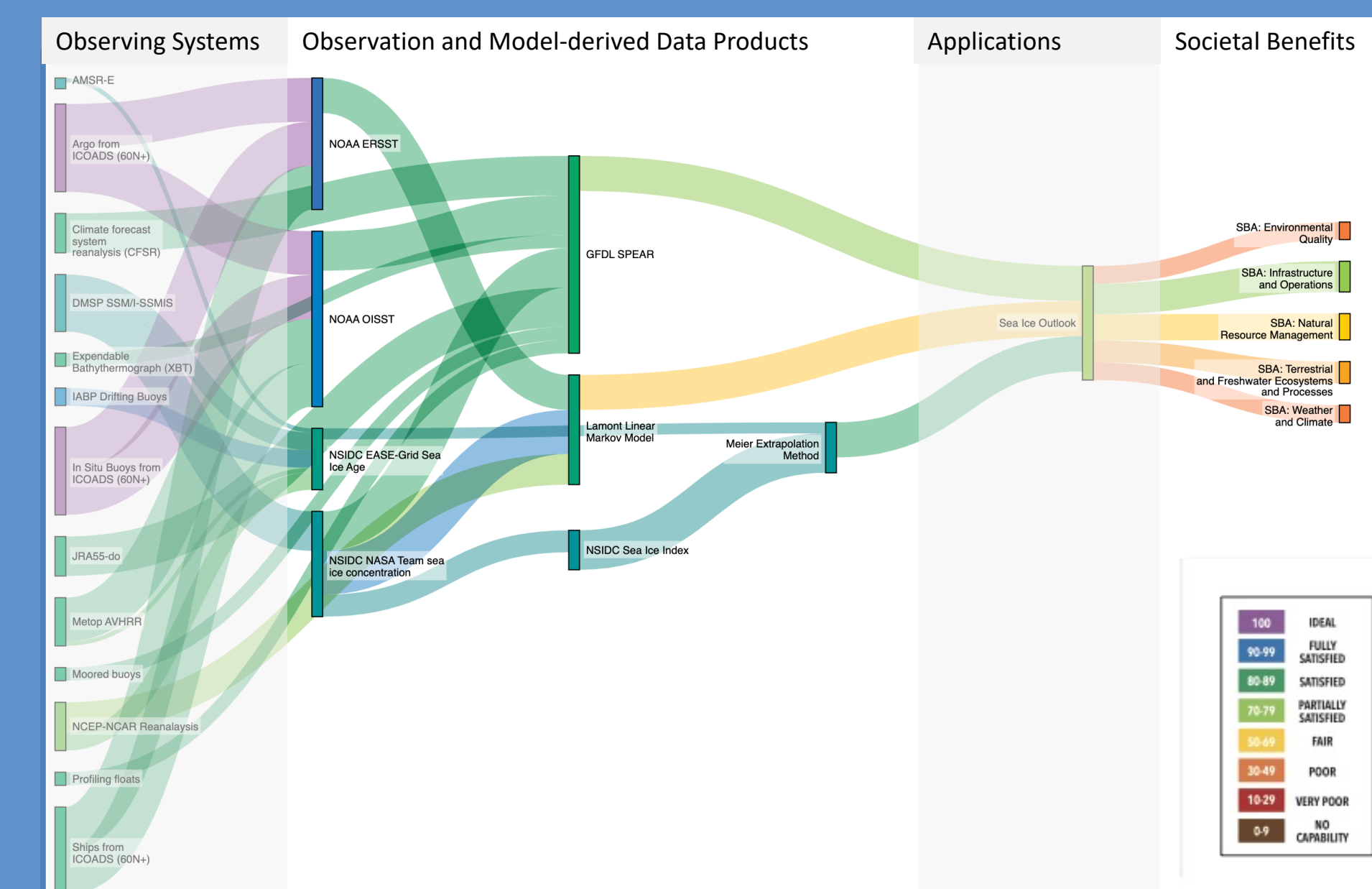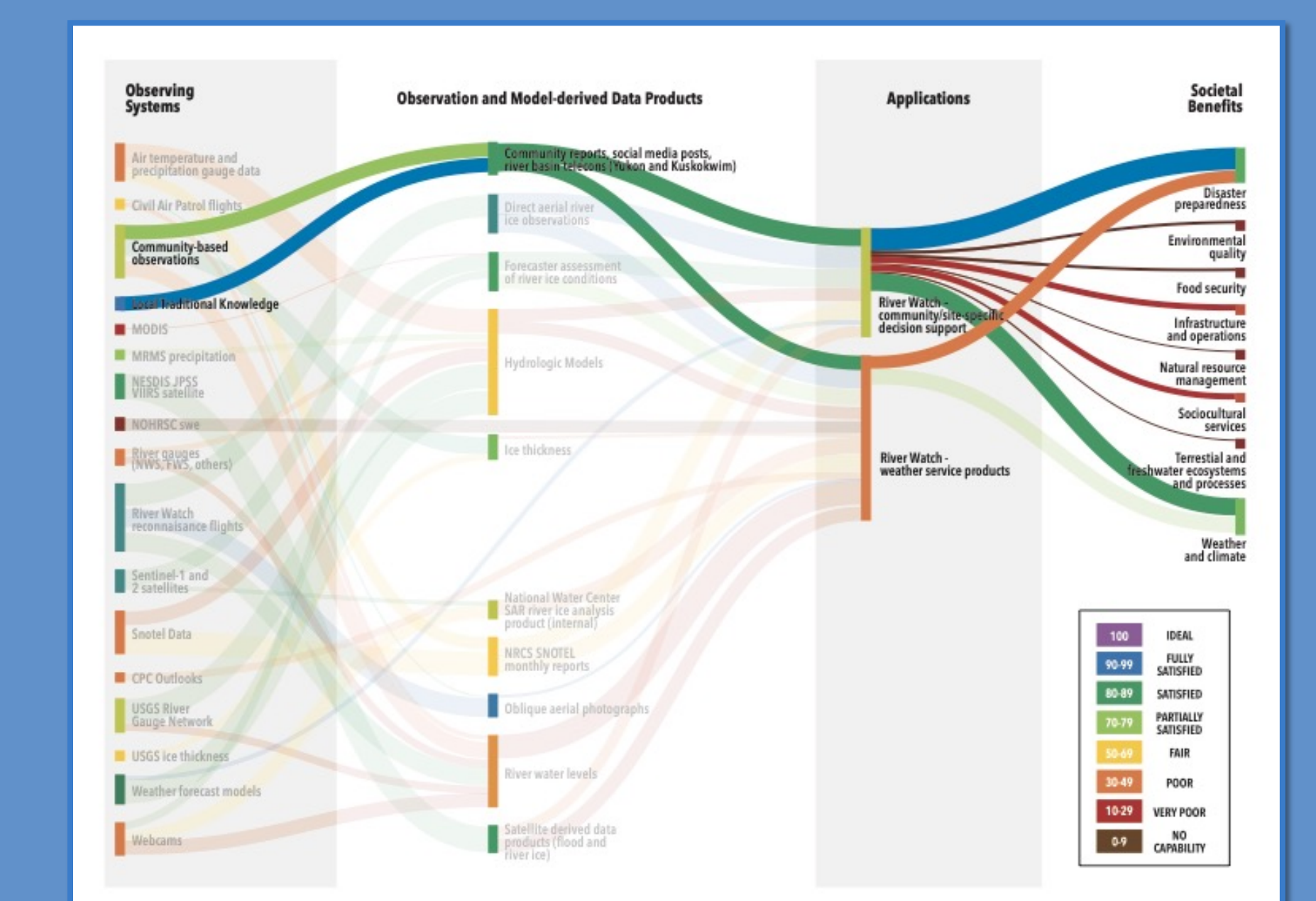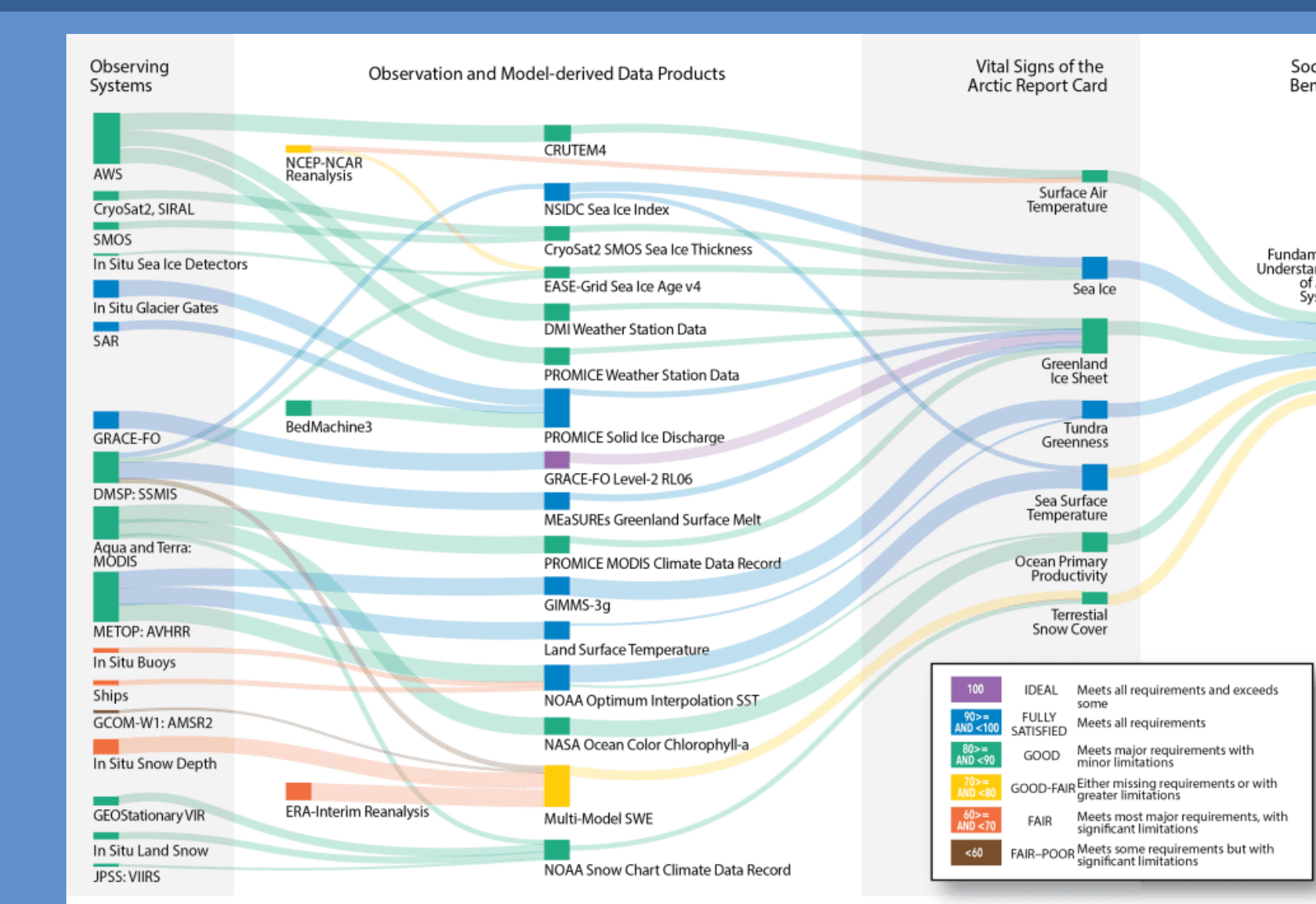| Benefit Tool User	Use Case	Examples
Scientific Research & Operations	Visualize how relevant applications or products are supported by observations and data products See how my data or observation system is being used Demonstrate how my work supports societal benefit and learn how it could do better Explore gaps that impact my work and design solutions that increase its impact	This case study (in review) was initiated by the Sea Ice Prediction Network 2 (SIPN2) to explore the similarities and differences of forecast initialization schemes used by diverse Sea Ice Outlook contributors in their September sea ice minimum forecast. As a learning network, SIPN2 values these visual storytelling tools and the role they play in improved understanding of S2S predictions relevant to infrastructure and operations.
Indigenous Communities & Northern Residents	Provide user guidance for increasing the impact of new or existing tools Discover tools that other community members are using See where community-created observations and data systems are being used Understand how my own observations and data can support societal benefit	The River Watch case study focuses on the complex observing system required for forecasting river ice break up in the Y-K region of Alaska. The highlighted system illustrates the value of engaging Indigenous expertise through culturally-relevant mechanisms like community-led observations and conference calls. The capacities contribute to better disaster preparedness than NWS products alone.
Research Program Managers & Policy Makers	See a broader view of the Arctic observing system and its impact Demonstrate how my program supports societal benefit Identify critical areas for new or sustained investment	This case study explores the observing and data assets that underpin the indicators featured in the NOAA-published annual Arctic Report Card. As a widely read and influential publication, its sponsors are interested in the needs to sustain key indicators and to fill observing system gaps to support the public's fundamental understanding of Arctic change.

Adding Benefit with US AON

1. Add to our growing library of registered assessment objects (QR code)
2. Create your own Benefit Assessment (QR code)
3. Partner with US AON to host a workshop featuring Benefit Assessment and dialogue around strengths, gaps, and opportunities

Contact sandy.starkweather@noaa.gov or hazel@iarpccollaborations.org

Benefit Tool

Contribute to our Benefit Tool Development

GitHub paragraph: "The Benefit Tool system is developed with a community-driven approach on GitHub (https://github.com/nsidc/usaon-benefit-tool). We have already accepted code contributions from members of the public and welcome contributions in any form, technical or non-technical. If you'd like to request a feature, we welcome you to engage with us on GitHub Discussions (https://github.com/nsidc/usaon-benefit-tool/discussions). If you'd like to report a bug or submit an experience report, please open an issue (https://github.com/nsidc/usaon-benefit-tool/issues). And of course, pull requests are always welcome!