

Appendix B

Information Quality in the Assessment

Author

Gyami Shrestha, U.S. Carbon Cycle Science Program and University Corporation for Atmospheric Research

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As a “highly influential scientific assessment” (HISA),¹ the *Second State of the Carbon Cycle Report (SOCCR2)* contains cited information that meets the standards of the Information Quality Act (IQA). SOCCR2 followed federal information quality, transparency, and accessibility guidelines, undergoing peer review, public review, and final interagency review in the United States.

¹ The White House Office of Management and Budget (OMB) requirements for highly influential scientific assessments (Executive Office of the President 2004) and the OMB M05-03 Peer Review Bulletin Section III (Peer Review of Highly Influential Scientific Assessments) describe making publicly available the specific information on the peer review of influential documents disseminated by the federal government: “Even for these highly influential scientific assessments, the Bulletin leaves significant discretion to the agency formulating the peer review plan. ... The use of a transparent process, coupled with the selection of qualified and independent peer reviewers, should improve the quality of governmental science while promoting public confidence in the integrity of the government’s scientific products.” Under the auspices of the U.S. Global Change Research Program and U.S. Department of Agriculture administrative leadership, the *Second State of the Carbon Cycle Report* followed the requirements, had significant interagency leadership and interests, and underwent multiple peer reviews, including by the public and a committee of the U.S. National Academies of Sciences, Engineering, and Medicine.

B.1 Identification of Literature Sources

The assessed content in SOCCR2 incorporates referenced materials derived primarily from the existing, peer-reviewed scientific literature and is consistent with guidance regarding the use of other literature. It adheres to the U.S. Department of Agriculture’s (USDA) Information Quality Guidelines (USDA 2018) and administrative processes, as well as the Office of Management and Budget’s federal information quality, transparency, and accessibility guidelines (Executive Office of the President 2004) for a HISA-appropriate document. Information from several sources was assessed, including:

1. A public request for technical input released by USDA on behalf of the U.S. Global Change Research Program (USGCRP) and the Carbon Cycle Interagency Working Group (CCIWG) on February 12, 2016 (FRN 2016);
2. Expert awareness of the literature from the authors;
3. Information provided during scoping and writing workshops and public engagement events such as professional town halls (see Appendix A: Report Development Process, p. 810); and
4. Continuous chapter-specific identification, information quality checks, and exchange of pertinent technical resources and up-to-date scientific literature by SOCCR2 team members and associated federal agencies.

The first SOCCR2 Federal Register Notice (FRN 2016) included a 30-day call for scientific information and technical input (e.g., submissions of recent, relevant, and scientific and technical research

studies including observed, modeled, and projected carbon cycle science information that has been peer-reviewed and published or accepted for publication in scientific journals and governmental reports). The Federal Register Notice included a summary of the draft Prospectus and the proposed report structure and scope, along with a web link to the detailed SOCCR2 draft Prospectus, for the public to provide pertinent input and comments via globalchange.gov. The finalized Prospectus and related SOCCR2 resources are available at www.carboncyclescience.us/state-carbon-cycle-report-soccr#Resources.

In November 2017, USDA issued a second Federal Register Notice (FRN 2017) on behalf of the USGCRP and U.S. Carbon Cycle Science Program that sought input from the public on the “Fourth Order Draft” of SOCCR2. The U.S. National Academies of Sciences, Engineering, and Medicine’s (NASEM) Committee to Review the SOCCR2 Draft also published a review of the same draft in March 2018 (National Academies of Sciences, Engineering, and Medicine 2018). Additional literature and information sources were incorporated into SOCCR2 in response to both the public and NASEM reviews and to newly available scientific information.

B.2 Compliance with the Information Quality Act

The SOCCR2 Federal Steering Committee and Science Leads developed a SOCCR2 Author Guide, which contained specific guidance on maintaining information quality and adhering to the IQA. They provided the guide to the assembled author team of each chapter at the beginning of the report development process in early 2016. The guidance included a decision tree developed and provided by USGCRP, as previously used by the Climate and Health Assessment (USGCRP 2016). The decision tree and a list of provided questions guided the authors’ consideration of whether and how to use source materials in SOCCR2. It assisted authors in evaluating potential sources and references from the peer-reviewed scientific literature and governmental reports and in using gray literature in

limited situations, identifying needed additional documentation to justify its use. Accordingly, during each chapter’s development and the revisions arising from the iterative peer and federal reviews occurring between the summers of 2016 and 2018, chapter teams assessed available literature and information sources, primarily focusing on and using peer-reviewed scientific literature (see References and Supporting Evidence at the end of each chapter). Because SOCCR2 is a special USGCRP Sustained Assessment report that also contributes to the *Fourth National Climate Assessment Vol. II* (due to be published in late 2018), many of these guidelines are consistent with or directly derived from the *Third National Climate Assessment* (Melillo et al., 2014). The guidelines, along with guidance documents from other Sustained Assessment special reports, were adapted to the specific context of the SOCCR2 effort.

B.3 Gray Literature

The author teams were asked to derive the Key Findings of their chapters primarily from peer-reviewed scientific literature that met all IQA criteria. However, in some cases, essential content for a specific topic was available from sources other than peer-reviewed literature, such as unofficial governmental publications, reports, white papers, or other documents generally referred to as gray literature. The author teams could include a limited number of supporting citations from gray literature that they deemed essential content not available in scientifically peer-reviewed journals, provided the authors could answer “yes” to all other IQA questions. In such limited situations where information was only available outside peer-reviewed scientific literature or governmental reports, author teams were required to evaluate potential sources with the following additional considerations:

- **Utility:** Is the particular source important to the topic of the chapter?
- **Transparency and traceability:** Is the source material identifiable and publicly available?

- **Objectivity:** Why and how was the source material created? Is it accurate and unbiased?
- **Information integrity and security:** Will the source material remain reasonably protected and intact over time?

As the administrative agency responsible for producing this report, the USDA National Institute

of Food and Agriculture ensured that referenced information adhered to USDA Information Quality Guidelines (USDA 2018).

REFERENCES

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