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New digital formats for communicating CO₂ savings potential for Germany

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Human-induced climate change is one of the most pressing challenges of our time. The Helmholtz Association is making essential contributions to curbing the causes of climate change and finding ways to adapt. With the Helmholtz Climate Initiative, research is concentrated on the two focal points, "reduction of net emissions" and "adaptation to climate impacts". In Net-Zero-2050, Cluster I of the Helmholtz Climate Initiative, strategies and ways to reduce carbon emissions are scientifically investigated and evaluated. Furthermore, two digital communication formats are being developed to comprehensively show the research's complex results. Firstly, the web-based National Net-Zero-2050 Atlas informs the user about different methods and technologies for CO₂ reduction and possible reduction paths. Secondly, the Soil Carbon App enables actors of the agricultural sector to assess climate mitigation potentials that arise from using different land management methods. A land surface model is used to simulate future scenarios presented in the app via cloud-based, model-driven workflows.

Both formats aim to support users in making decisions and developing strategies. The work on the products follows the principles of comprehensibility, transparency and appropriate information presentation. During the work on the products, we identified challenges such as:

- How to deal with multi-dimensional data sets and uncertainties?
- How to present scientific results in a user-friendly manner for varied target groups?
- How to guide the users of varied target groups through the communication formats?

With the aid of a critical internal reflection, approaches to overcome these challenges were developed and applied. For example, the atlas introduces different complexity levels to enable users to gain understanding, despite very diverse backgrounds, prior knowledge and information needs. The app, for its part, offers two main sectors that address the users' different demands and prior knowledge: (1) it features options to choose from the data and subsequently delivers graphical analyses, and (2) it provides respective interpretation, texts, and web links.

The article presents the two dissemination products as well as the challenges and solutions from the development work.