Styling and Publishing Multidimensional Imagery to the Web

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Abstract:

There are many things to consider when designing cartography for multidimensional imagery layers. These are global datasets, comprised of millions of pixels, that dynamically change across the map depending on which dimension is selected. For cartographers this represents a unique challenge and opportunity to apply color to unlock the data's story and display a full spectrum of information without bias. Color becomes even more important when the multidimensional imagery layers are comprised of "sets" where a group of color schemes are used together.

Multidimensional imagery layers are commonly used within the earth sciences community and have substantially transformed how we analyze and visualize complex geographic data. Multidimensional imagery layers are made from raster layers and represent information captured during different time periods, heights, or depths. With advancements in technology, online GIS platforms can now serve these layers quickly to a wide audience. It's just a few clicks to view maps that change through space and time. Now more than ever, the styling and how it accurately and meaningfully represent environmental information is critical for understanding, use, and adoption of multidimensional phenomena both within the earth science community and the general population.

In this presentation, styling and publishing multidimensional imagery layers and color schemes will be discussed with examples from two sets of layers – World Soils 250 meters and the Global Wind Atlas. The focus will be on how to design color schemes for a group of imagery layers, how to address the multidimensional transformations within the map, and how the technology is changing to address cartographic customizations that are needed for imagery layers that are published online.

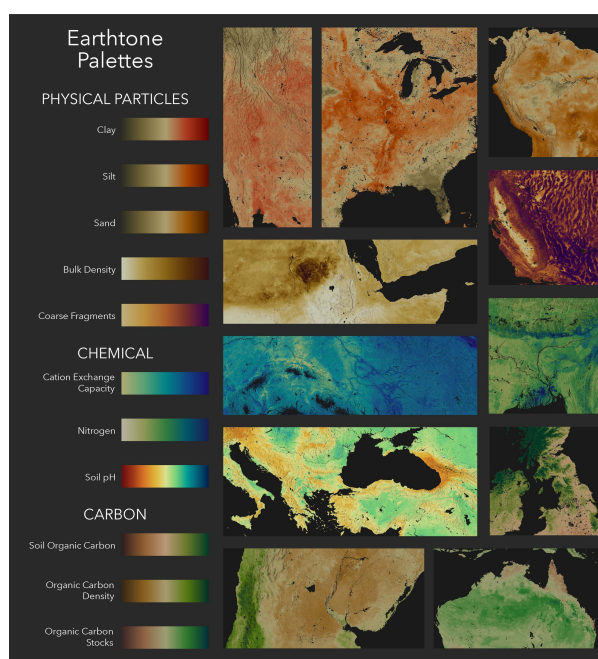The following figures will be discussed during the presentation:

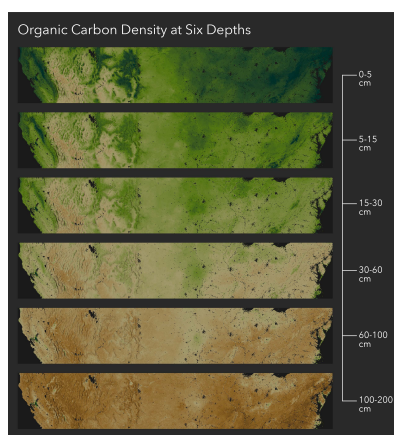Figure 1. Colour schemes developed for 11 separate World Soil 250 meters layers

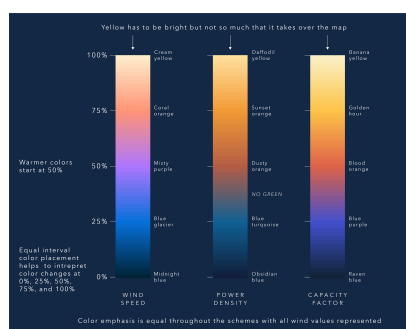Figure 2. The six depths and how the colour scheme changes

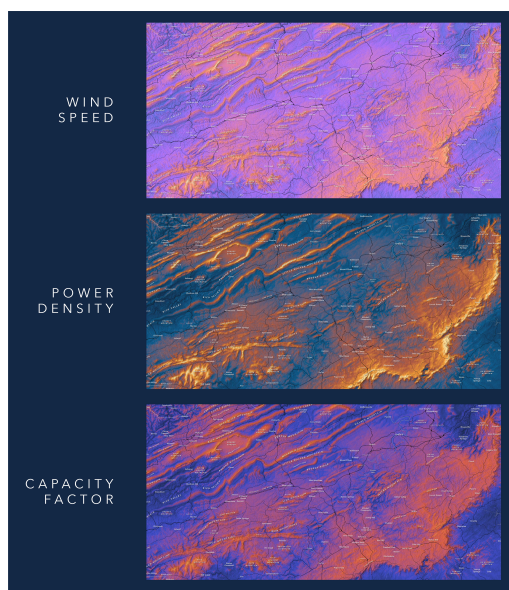Figure 3. Three colour schemes developed for the Global Wind Atlas.

Figure 4. The colour schemes – Wind Speed, Power Density, and Capacity Factor

References

ArcGIS Living Atlas of the World. (2025) *World Soils 250 meters*
https://livingatlas.arcgis.com/en/browse/?q=%22world%20soils%20250m%22#q=%22world+soils+250m%22&d=2

ArcGIS Living Atlas of the World. (2025) *The Global Wind Atlas*.
https://livingatlas.arcgis.com/en/browse/?q=%22global%20wind%20atlas%22#q=%22global+wind+atlas%22&d=2