Data visualization in interactive maps and time series

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State-of-the-art data visualization has nothing to do with plots and maps we used few years ago. Many opensource tools are now available to provide access to scientific data and implement accessible, interactive, and flexible web applications. Here we will present a web site opened November 2013 to create custom global and regional maps and time series from research models and datasets. For maps, we explore and get access to data sources from a THREDDS Data Server (TDS) with the OGC WMS protocol (using the ncWMS implementation) then create interactive maps with the OpenLayers javascript library and extra information layers from a GeoServer. Maps become dynamic, zoomable, synchroneaously connected to each other, and exportable to Google Earth. For time series, we extract data from a TDS with the Netcdf Subset Service (NCSS) then display interactive graphs with a custom library based on the Data Driven Documents javascript library (D3.js). This time series application provides dynamic functionalities such as interpolation, interactive zoom on different axes, display of point values, and export to different formats. These tools were implemented for the Global Carbon Atlas (http://www.globalcarbonatlas.org): a web portal to explore, visualize, and interpret global and regional carbon fluxes from various model simulations arising from both human activities and natural processes, a work led by the Global Carbon Project.