Sphinx: Documentation Made Easy

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UV-CDAT is a project with more than 20 years of code; hundreds of thousands of lines spread across hundreds of files. It has undergone dramatic revisions several times, and the available documentation for using the libraries contained in the project have fallen into disrepair over the years. To address this issue (and to prevent it from happening in the future), I am creating documentation generated automatically from the source code using Sphinx.

What is Sphinx?

Sphinx is a tool that reads through a project's existing documentation and generates documentation output in many formats.

It was originally developed for the new official Python documentation, but it has since been expanded to work with a number of other languages, including C/C++.

Why Sphinx?

Documentation is a chore many developers would rather not tackle. In large projects, tracking down connections between one part of the program and another, and highlighting them in hand-crafted webpages would take ages. Sphinx allows us to focus on creating clean, informative documentation without wasting developer time on such tasks.

How Does It Work?

Sphinx can take any reStructuredText and convert it into a number of different formats. In Python, Sphinx runs a routine that auto-generates documentation output for functions and classes by reading through RST-formatted docstrings and interpreting the markup. Documentation can be output in formats including: PDF, docx, UNIX man pages, ePub, LaTeX, and HTML.
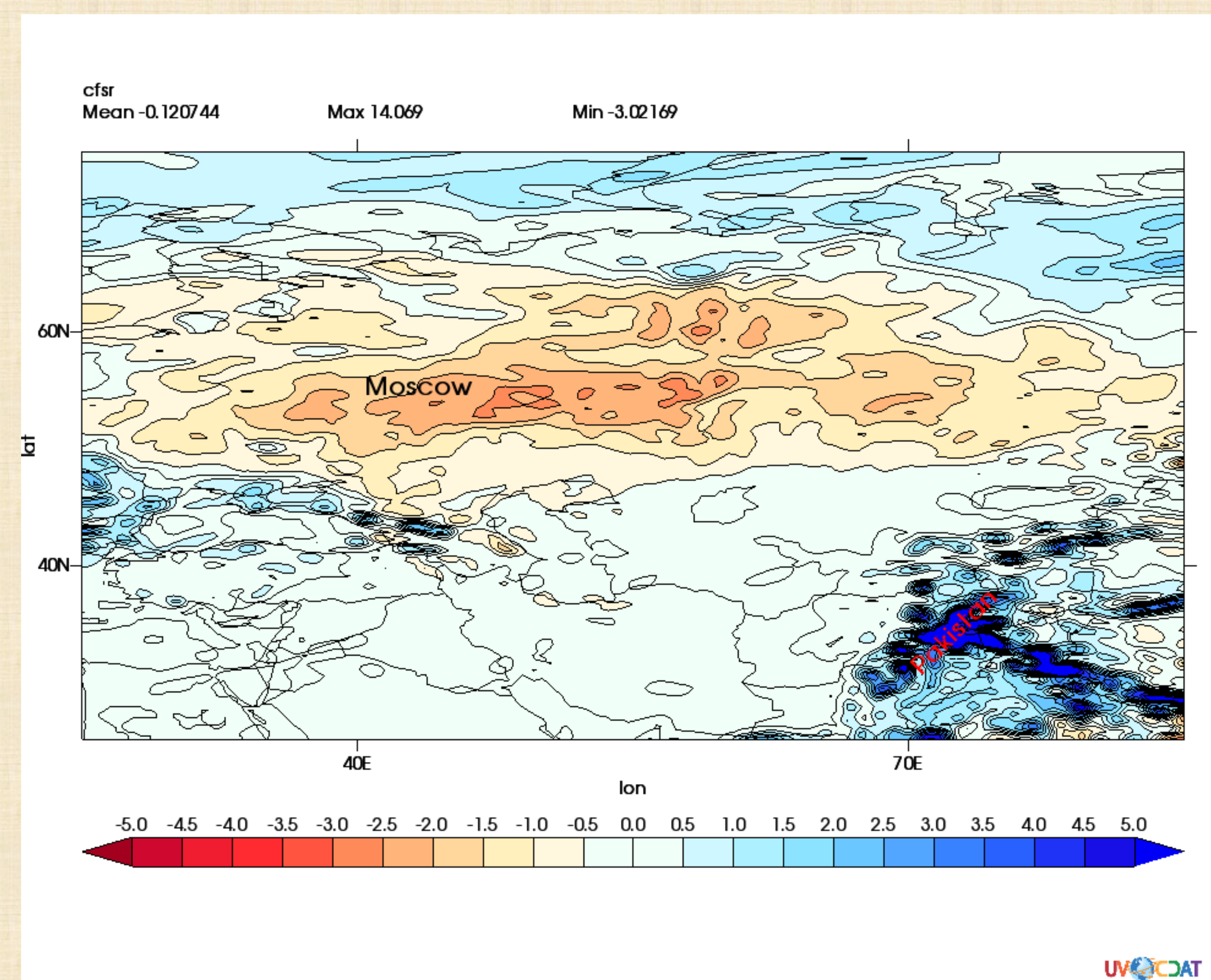
What is UV-CDAT?

The Ultrascale Visualization Climate Data Analysis Tools allow scientists to take climate data in a wide variety of formats, analyze it, and create graphical visualizations of their results. Scientists at facilities around the globe use the software, including NASA, NOAA, IPSL, DKRZ, IIT Delhi, and many others.

How We Use Sphinx:

UV-CDAT serves a large community of scientists from many different organizations. This means that our users have different needs when it comes to documentation.

Because Sphinx can generate our documentation in many formats, meeting the documentation needs of our users is trivial.

Our main documentation source is a website with an alphabetized index of links to the documentation for our functions and classes, and a built-in search box. If any of our users want this information to be available in another format (PDF, ePub, docx, etc.), creating it is as easy as typing a command in the terminal.