Python Libraries

Data Manipulation and Analysis

- pandas - Data manipulation and analysis.
- numpy - Numerical computations with arrays and matrices.
- xarray - Working with multi-dimensional arrays, especially for climate data.

Data Visualization

- matplotlib - Creating static, animated, and interactive visualizations.
- seaborn - Statistical data visualization built on top of matplotlib.
- plotly - Interactive, web-based visualizations.
- cartopy - Geospatial data plotting, especially for mapping in Earth sciences.

Machine Learning and Statistical Modeling

- scikit-learn - Machine learning and statistical modeling.
- tensorflow - Deep learning and neural networks.
- keras - High-level neural networks API, running on top of TensorFlow.
- statsmodels - Estimation of statistical models and conducting hypothesis tests.

Climate and Atmospheric Science

- cdsapi - Accessing climate data from the Copernicus Climate Data Store.
- netCDF4 - Reading and writing NetCDF files.
- Climate Data Operators (CDO) - Data manipulation and analysis for climate data.
- metpy - Tools for meteorological data and analysis.
- pyproj - Cartographic projections and geodetic transformations.
- NCL (NCAR Command Language) - Used with NCL-PyNGL, for data processing in atmospheric and ocea

Data Processing and Pipelines

- dask - Parallel computing for large datasets.
- joblib - Lightweight pipelining in Python for jobs.
- multiprocessing - Parallel processing of tasks to improve performance.

Geospatial Analysis

- geopandas - Geospatial data manipulation, extending pandas to handle spatial data.
- shapely - Manipulation and analysis of planar geometric objects.
- rasterio - Working with raster data in geospatial analysis.
- fiona - Reading and writing geospatial data files.

APIs and Web Scraping

- requests - Sending HTTP requests and interacting with web APIs.
- beautifulsoup4 - Parsing HTML and XML documents for web scraping.

Miscellaneous

- os - Interface with the operating system.
- datetime - Manipulating date and time data.
- sys - Interacting with the Python runtime environment.