NetCDFReader Package

A convenience package for reading NetCDF Files

Version 0.1

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Please send any errors, problems, comments or suggestions to me.

1. FOREWORD & VERSION

Reading NetCDF Files in *Mathematica* is quite cumbersome. This package should provide an easy way to read NetCDF Files and extract all contained information with minimum effort.

Last changes

First Version Finished

2. DOCUMENTATION

I will start with a short introduction on the idea behind the package, then give some examples on the usage and the list all functions implmented yet. Some short infos can be obtained with the questions mark operator ***?function.***

2.1 Load the package

Whereever it is located...

In[51]:=
```
<< "/Users/jan-hendrikprinz/Desktop/NetCDFReader.m"
```

2.2 The NetCDFFile Object

The NetCDFFile

NetCDFFile (NetCDF)

Contains all the information from an NetCDFFile except the datasets itself. These might be really large and not all of the should be read. The Objects should not be created by hand. Only by the appropriate read functions.

Structure

NetCDFFile[filename, metadata, datasetinformation, options]

DisplayForm

NetCDF_1(texst.nc)

In the round brackets the filename is shown. The subscript number indicates the number of contained datasets.

2.3 Read Functions

OpenNetCDFFile

Returns a NetCDFFile Object containing all the essential meta data of the specified file.

Syntax

OpenNetCDFFile[filename]

Example

```
ncFile = OpenNetCDFFile["test.nc"]
```

```
NetCDF1(texst.nc)
```

GetDataset

Return a dataset stored in the NetCDF File. The second argument can either be the index in the file starting with one or the actual name of the dataset.

Syntax

```
GetDataset[netCDFFile, datasetIndex]
```

```
GetDataset[netCDFFile, datasetName]
```

Example

```
In[103]:= data = GetDataset[ncFile, 1];
          Dimensions[data]
Out[104]= {100, 100, 100}
```

2.4 Basic Functions

ListDatasets

Returns a list of names of all the datasets (variables) in the NetCDFFile.

Syntax

```
ListDatasets[netCDFFile]
```

Example

```
In[98]:= ListDatasets[ncFile]
Out[98]= {temperature}
```

ListDatasetsFull

Returns a list of names of all the datasets (variables) in the NetCDFFile including all their metadata in the form:

```
{Name, Dimensions, DataType, MetaData}
```

Syntax

```
ListDatasetsFull[netCDFFile]
```

Example

```
In[100]:= ListDatasetsFull[ncFile]
Out[100]= {{temperature, {100, 100, 100}, Real64, {units → K, variable → temperature,
     description → Temperature at place_index x and time_index t, d0 → x, d1 → t, d2 → n}}}
```

3. STILL TO BE IMPLEMENTED

Error Messages

Enter all error messages necessary for reasonable usage and debugging

Documentation

Extended Examples Section, Introduction and Bibliography still missing

4 . BIBLIOGRAPHY

Literature Links, etc.

5 . APPENDIX

Additional Material