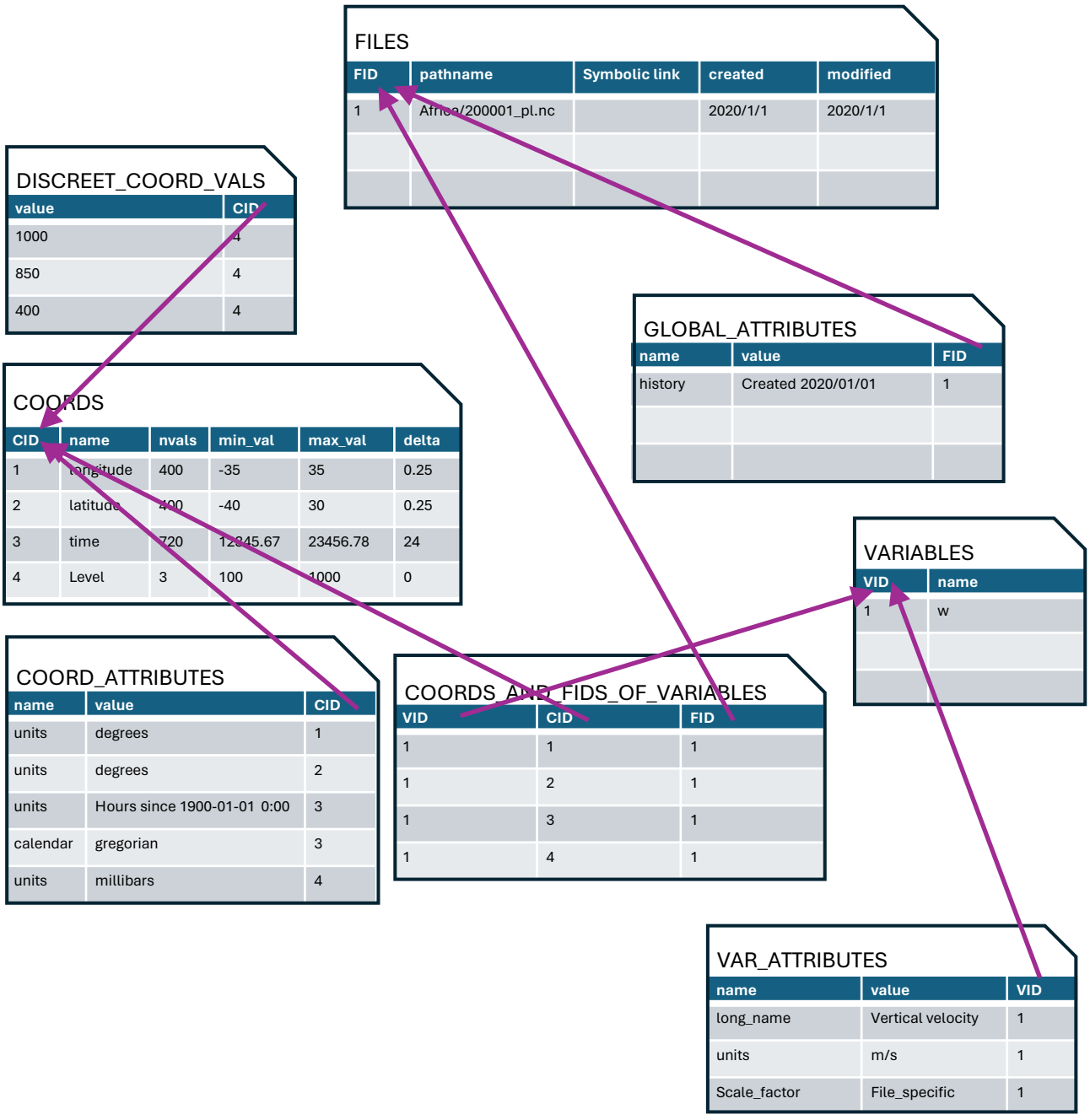
Design of Database

For each file, we add an entry in FILES and for each global attribute in that file we add an entry in GLOBAL_ATTRIBUTES.
For each coordinate in a file, if a coordinate with the same name, nvals, min_val, max_val, and any discrete_coord_vals and 'units' and 'calendar' attributes does not already exist, we add an entry in COORDS. If one of the attributes (but not 'units' or 'calendar') is different, we'll set the value to 'File specific' as for this application we don't really care. In this way we will only have one COORD entry for coordinates that look the same in different files.
For each variable in a file, if an entry for the variable does not already exist in VARIABLES and have the same list of attributes with the same value for 'units', 'long name' or 'standard name we will add an entry in VARIABLES and entries in VAR_ATTRIBUTES. If the variable exists but the new one has different values for attributes other than those mentioned above (e.g. 'scale factor') we will set the value of that attribute to 'File specific'. To identify which files and which coordinates go with this variable, we will add entries to COORDS_AND_FIDS_OF_VARIABLES. If the cids for all fids of a variable are the same, we will only add one entry with fid=-1

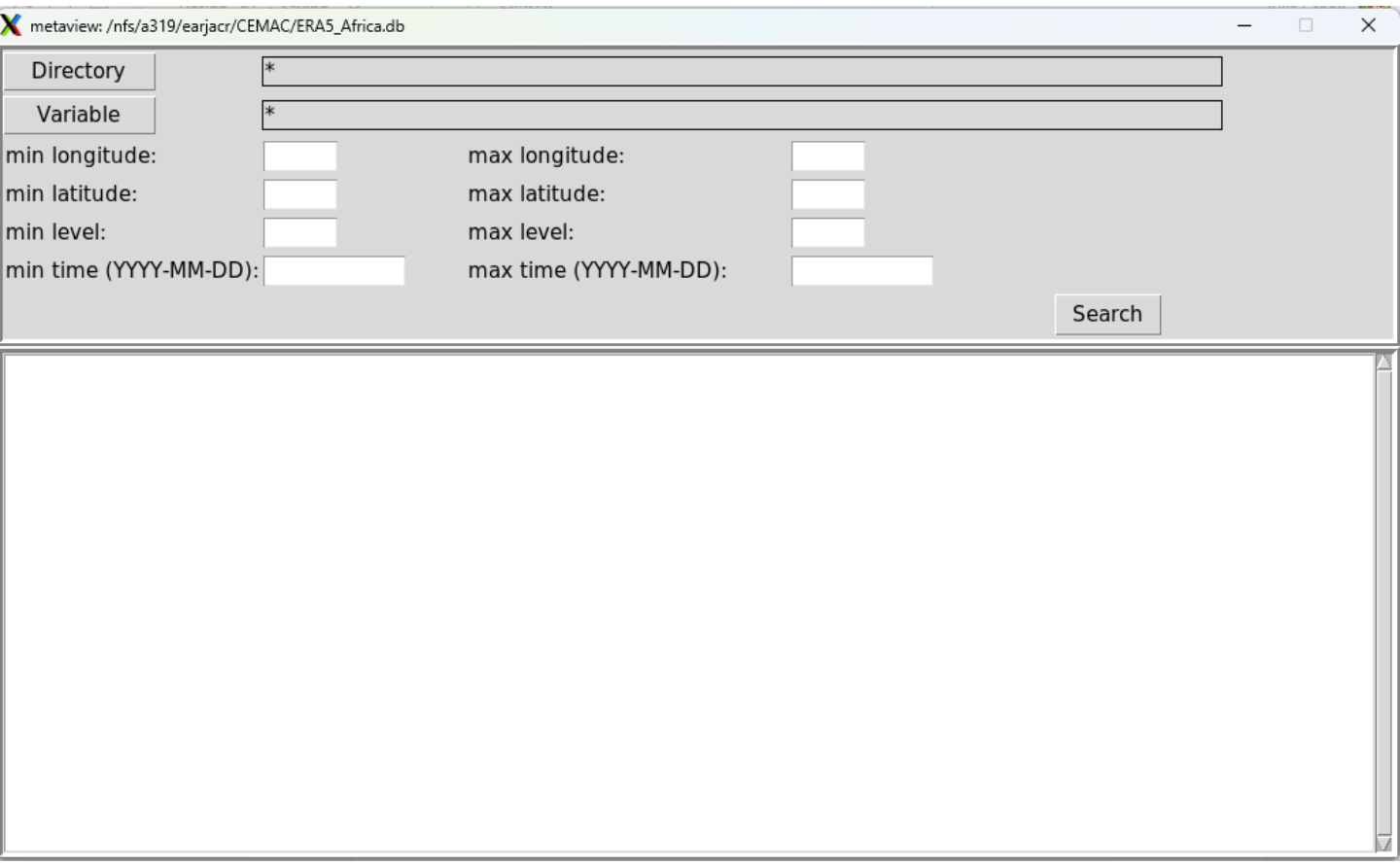


Metaview GUI to display results

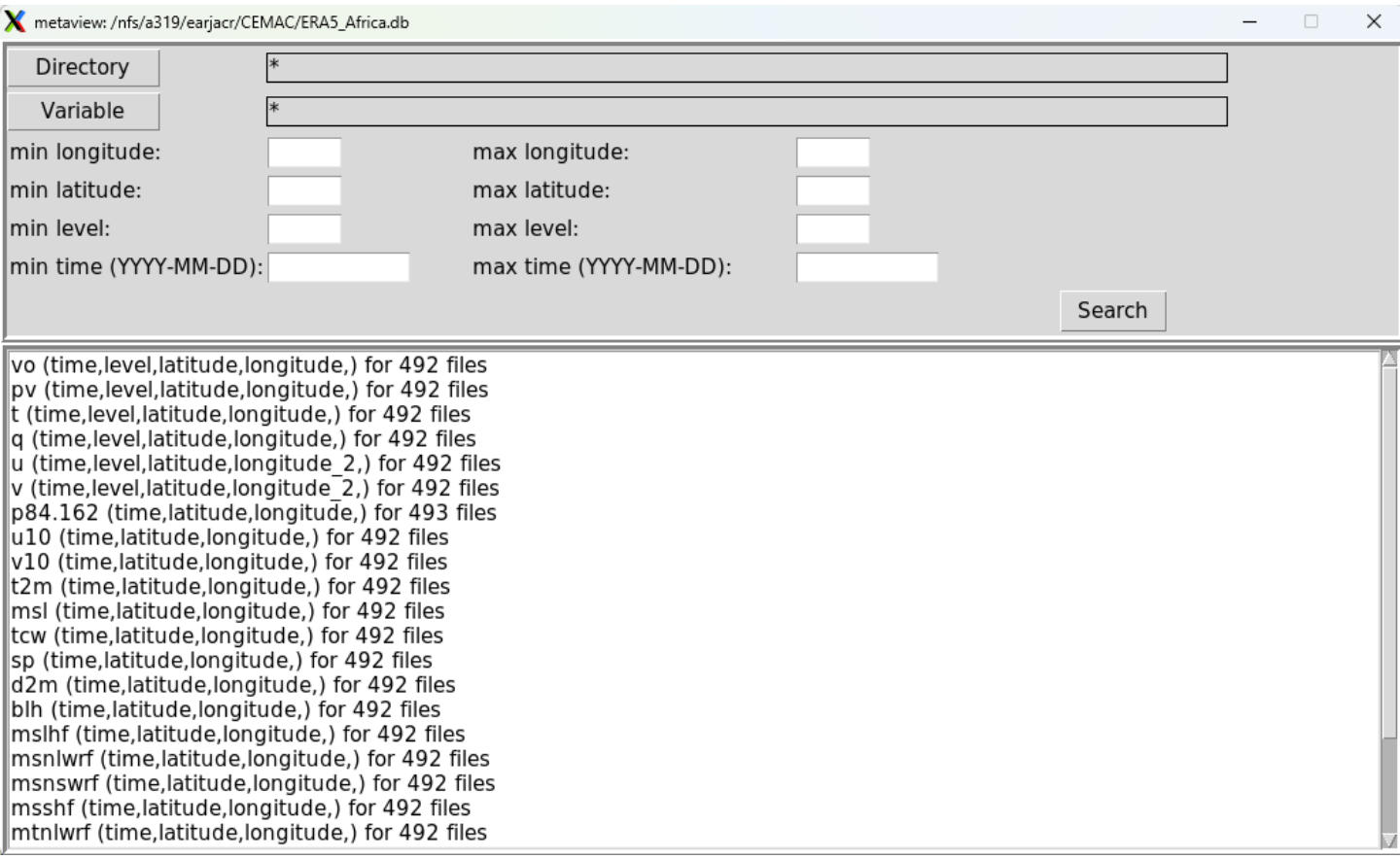
This is run using:
python metaview.py <dbname> <[coordinate list for filters, e.g. latitude longitude time level]>

Directory button allows user to choose a subdirectory within the database from a dropdown list
Variables button allows user to choose a single variable to find in the database from a dropdown list
Min and max values of coordinates can be added by the user to filter results.
Search button will perform the database search to find matching variables that exist within files in the subdirectory (or all files if directory=*) and also having coordinates within any ranges set.

Initial screen

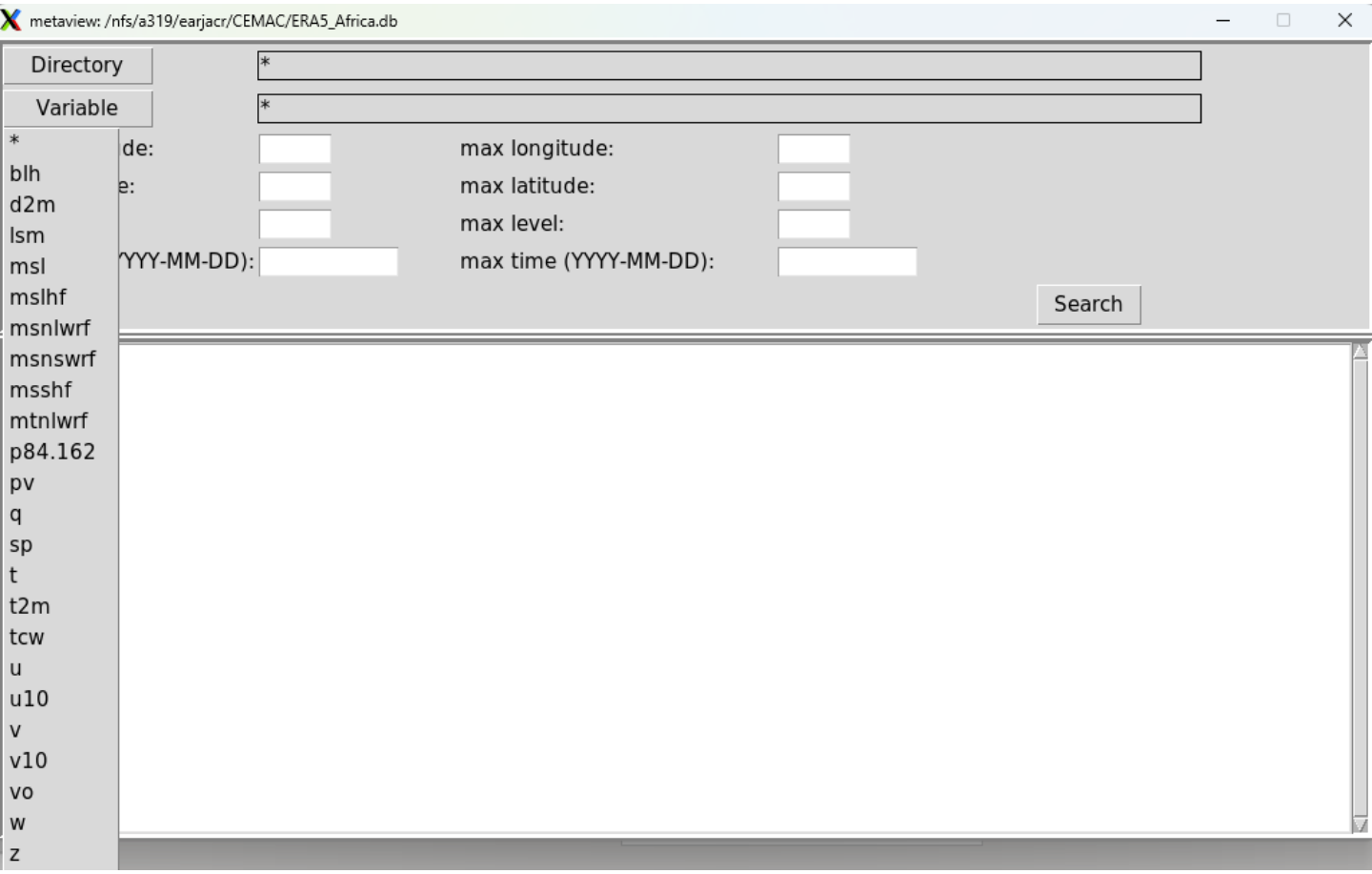


After clicking Search, the results will appear in the lower frame of the window, e.g. when the variable is set to *, the following results are displayed:

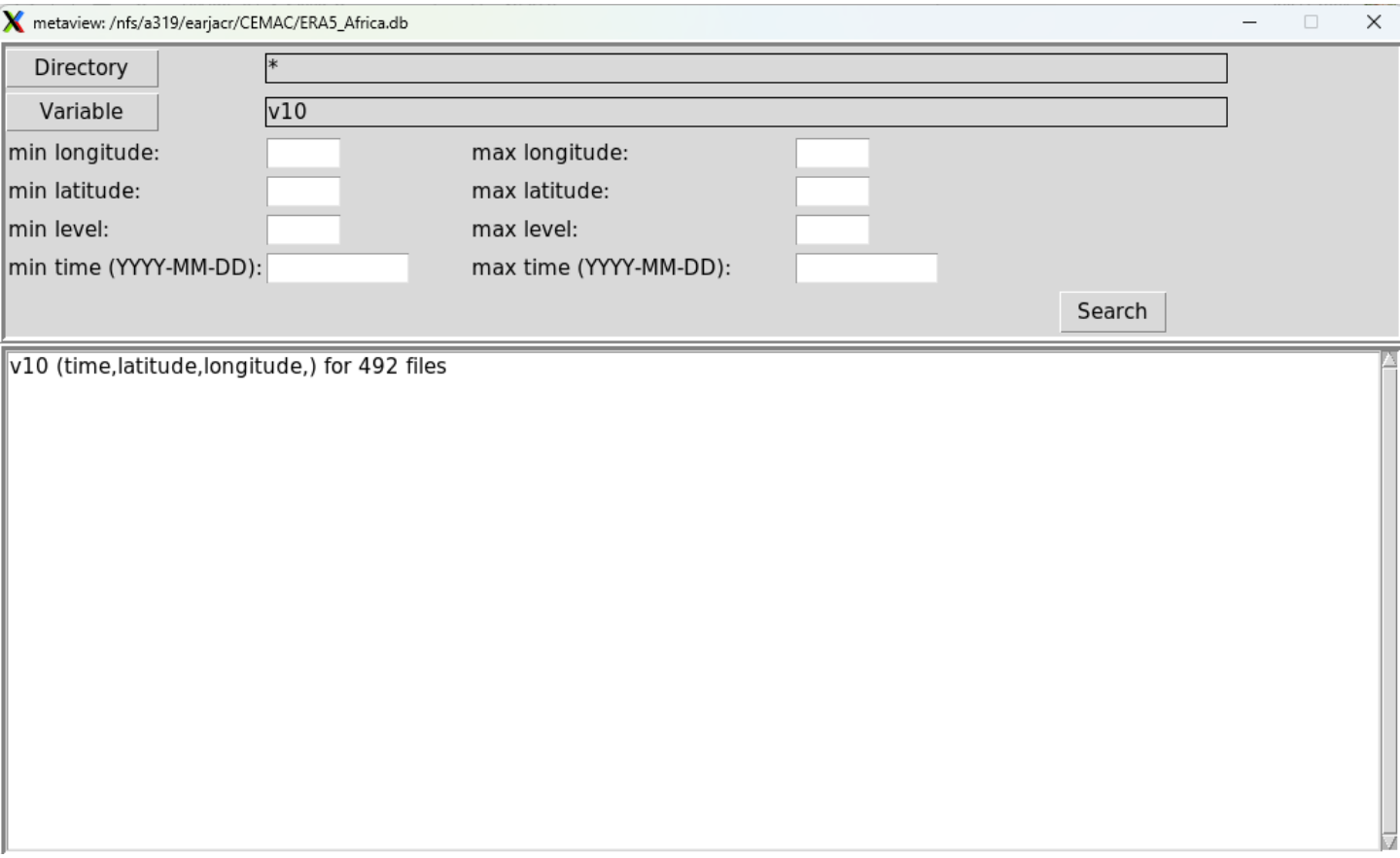


Selecting a variable

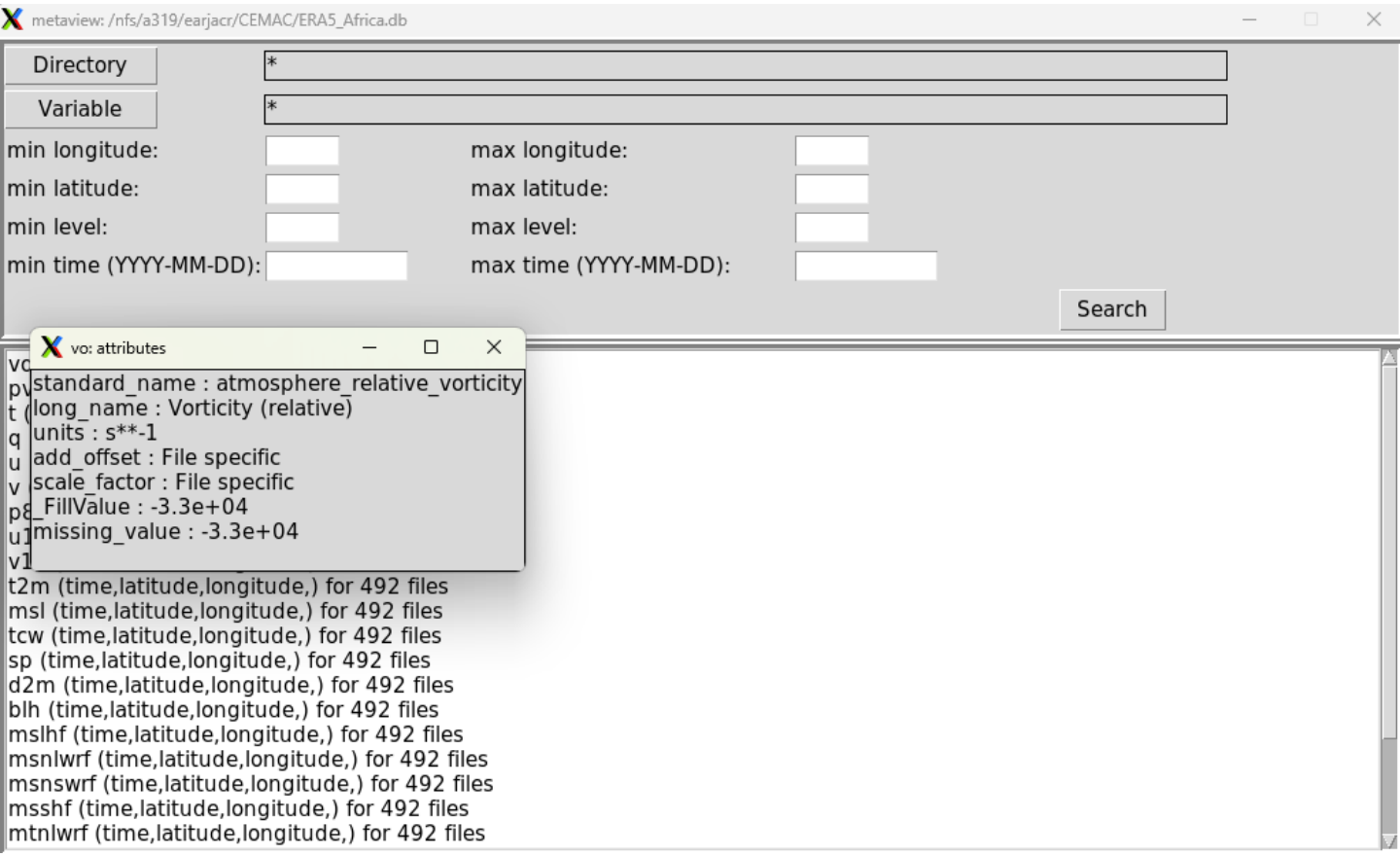
Click on the variable button and the dropdown menu to select variable appears. Once a value has been chosen, the name of the variable will replace the * currently in the variable label.



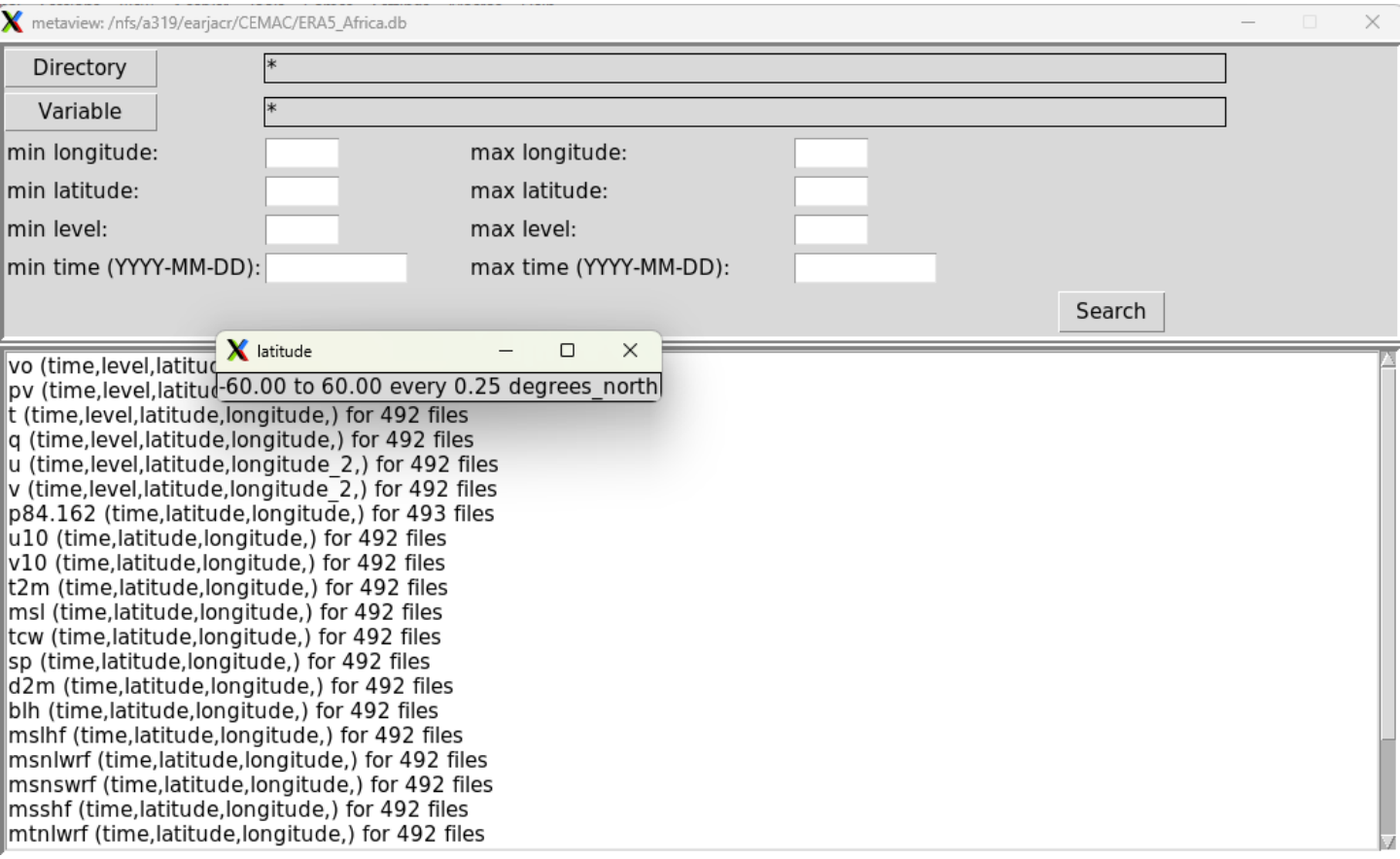
After choosing a variable, the results text is cleared. On clicking Search, the results for the variable will appear in the lower frame of the window, e.g. when the variable is set to v10, the following results are displayed:



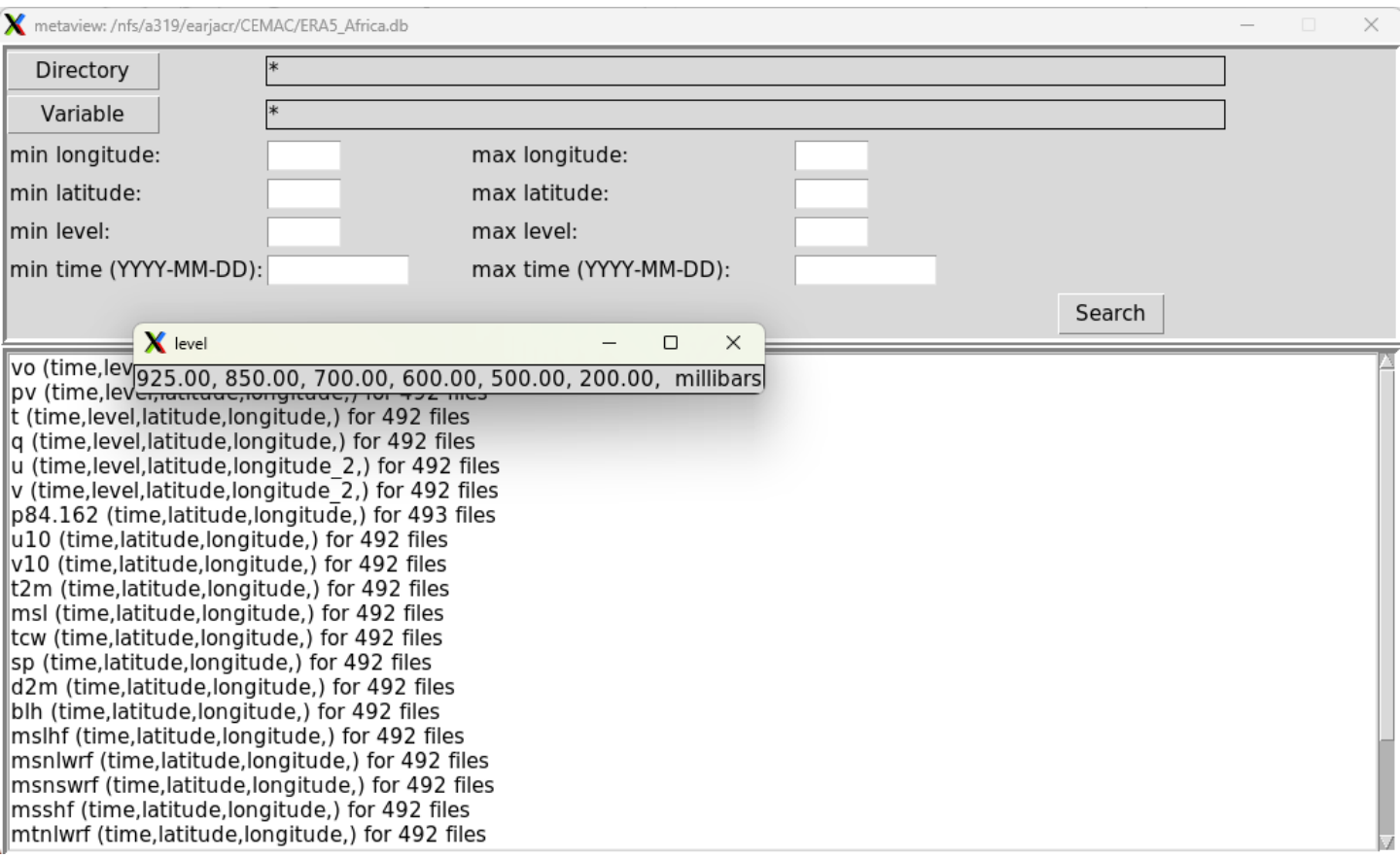
Clicking over a variable name in the results shows the attributes of the variable in a popup window. This window can be closed by clicking on the x



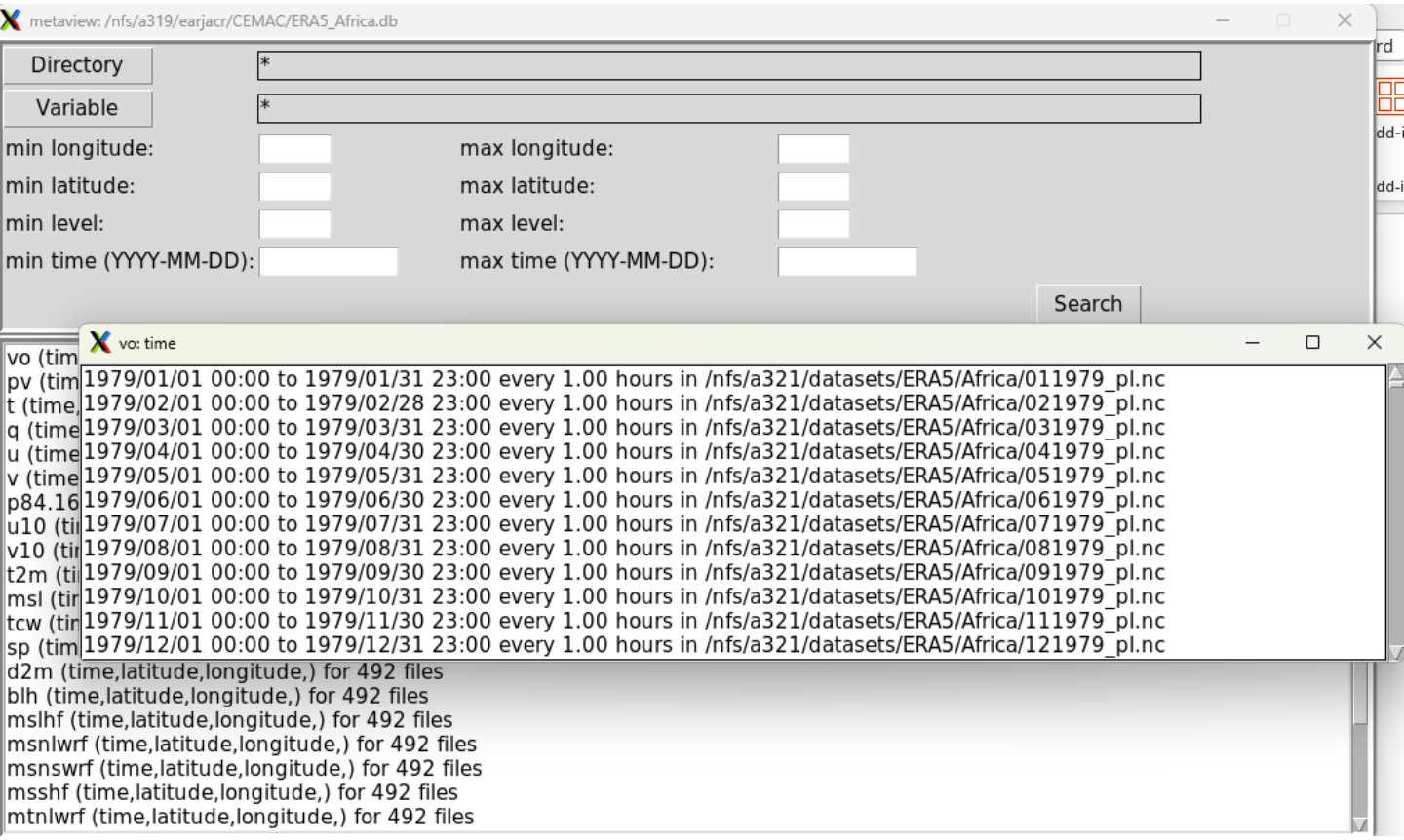
Clicking over a coordinate of a variable in the results shows the range of that coordinate in a popup window. The 1st example shows a coordinate with evenly spaced values.



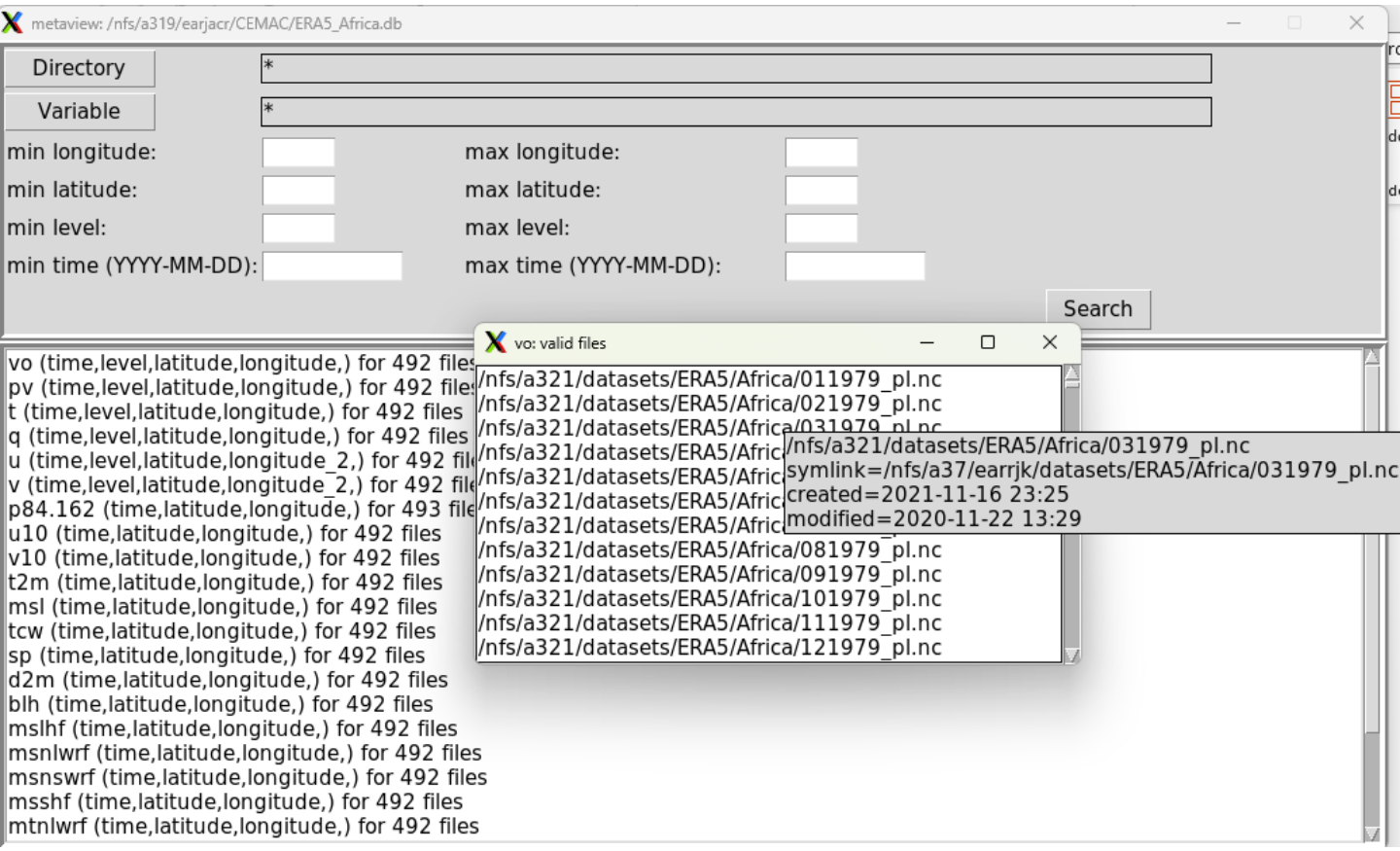
The 2nd example shows a coordinate with discrete values.



The 3rd example is for a dimension which has coordinates over multiple files. Note that the popup window has a scroll bar.



Clicking over ‘for XX files’ in the results shows the pathnames of the files in a popup window. If one of the pathnames in the popup window is then clicked, the details of that file appear in a popup box . To close this popup box, the user must click inside the box.



The user may select min and max values of coordinates to filter the results. On changing any of these filters, the results screen is cleared, and Search must be clicked again to perform the filtering.