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Supplement of

The S2M meteorological and snow cover reanalysis over the French mountainous areas: description and evaluation (1958–2021)

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```
import xarray as xr
import numpy as np
import matplotlib.pyplot as plt
from matplotlib.patches import Polygon
from matplotlib.collections import PatchCollection
import shapefile
import datetime

# Open nc file
ncdata = xr.open_dataset('PRO_2019080106_2020080106.nc')
# Retrieve data for diminesions / variables
time = ncdata.coords['time'].to_dataframe()['time'].values
var_snow_depth = ncdata.variables['DSN_T_ISBA']
var_slope = ncdata.variables['slope'].data
var_aspect = ncdata.variables['aspect'].data
var_massif = ncdata.variables['massif_num'].data
var_zs = ncdata.variables['ZS'].data

# 1. Plot temporal evolution of one variable
selection =
np.squeeze(np.where((var_zs==2400)&(var_massif==40)&(var_aspect==180.)&(var_slope==40)),
axis=0)
plt.plot(time, var_snow_depth[:,selection])
plt.show()
plt.close()

# 2. Get value at one given date
date = np.datetime64(datetime.datetime(2020, 3, 3, hour=6))
timeselect = np.squeeze(np.where(time==date))
var_date = var_snow_depth[timeselect, selection]

# 3. Plot map
# Download and unzip shapefiles and open the desired one
shapes = shapefile.Reader("massifs_alpes_2154.shp")
patches = []
for shape in shapes.shapeRecords():
    massif_number = shape.record[0]
    massif_name   = shape.record[1]
    polygon = Polygon(shape.shape.points, fill=False)
    patches.append(polygon)

# Plot massifs data & quit
fig,ax = plt.subplots(1)
collection = PatchCollection(patches)
ax.add_collection(collection)
ax.autoscale_view()
plt.show()

ncdata.close()
```