ATHENS - CASE STUDY 1 — Air Pollution Data Interpolation

Analyze data of air pollution caused by the dust particles concentration in the structured array PM10 stored in file POLLUTION_PM10.MAT. Data were observed by 106 ground measuring stations localized by their longitude and latitude with the sampling period of 30 minutes. Solve the problem in the following steps:

- Compute average of dust particles concentration through each day of January 2000 in all measuring stations
- Plot dust particles concentration in a selected measuring STATION and find its name and location
- Interpolate measured values at a selected DAY in all measuring stations for a rectangular grid covering longitude in the range 11.5:0.1:19.5 degrees and latitude in the range 48.3:0.05:51.3 degrees and visualize results in the three dimensional space and by a contour plot
- Add the contour of the Czech Republic into the final plot using longitude and latitude values of its boundary stored in the first and the second column of array CR stored in the file POLLUTION_PM10.MAT
- Compose a movie in the selected period of time from DAY1 up to DAY2
- Convert a movie into a general AVI file with a selected number of frames per second

Use the following MATLAB functions: LOAD, MEAN, SQUEEZE, MESHGRID, GRIDDATA, PLOT, MESH, CONTOUR, GETFRAME, MOVIE, MOVIE2AVI.

CS1.1	STATION: 11, DAY: 1, PERIOD FOR MOVIE: 1 - 5
CS1.2	STATION: 12, DAY: 2, PERIOD FOR MOVIE: 1 - 5
CS1.3	STATION: 13, DAY: 3, PERIOD FOR MOVIE: 1 - 5
CS1.4	STATION: 14, DAY: 4, PERIOD FOR MOVIE: 1 - 5
CS1.5	STATION: 15, DAY: 5, PERIOD FOR MOVIE: 1 - 5
CS1.6	STATION: 16, DAY: 6, PERIOD FOR MOVIE: 1 - 5
CS1.7	STATION: 17, DAY: 7, PERIOD FOR MOVIE: 1 - 10
CS1.8	STATION: 18, DAY: 8, PERIOD FOR MOVIE: 1 - 10
CS1.9	STATION: 19, DAY: 9, PERIOD FOR MOVIE: 1 - 10
CS1.10	STATION: 20, DAY: 10, PERIOD FOR MOVIE: 1 - 10
CS1.11	STATION: 21, DAY: 11, PERIOD FOR MOVIE: 1 - 10
CS1.12	STATION: 22, DAY: 12, PERIOD FOR MOVIE: 1 - 10