spatial_subset

This code creates a spatial subset of a MFIX run. The resulting RES and SPx files can be used in MFIX post processing routines. For example, the code can carve out a 31x51x31 subset of an original data set of size 42x302x62 starting at cell (10,100,30). If you have a section of special interest in a very large grid, you can create a spatial subset of that section and improve post processing speed.

Build Instructions

To build using g++

```
g++   spatial_subset.cpp  MfixData.cpp   -o  spatial_subset.exe
```

Usage

Notes:

- You should know the dimensions of the original run
- You should know the cells in the spatial subset that you want.
- Output of code: SUBSET.RES, SUBSET.SP1, etc.

Below are sample scripts of code execution. In each example, the original dimensions are:

- imax = 40 (so imax2 = 42)
- jmax = 300 (so jmax2 = 302)
- kmax = 60 (so kmax2 = 62)

Sample # 1: Basically just copying the data (SUBSET = entire range)

```
spatial_subset.exe

Enter run name >  COAL_JET

Enter    I1   I2 >    1  42

Enter    J1   J2 >    1 302

Enter    K1   K2 >    1  62
```

The I1, I2, J1, J2, K1, and K2 correspond to what you would enter in post_mfix in the examine_data option.

Sample # 2: A true subset

```
spatial_subset.exe

Enter run name >  COAL_JET

Enter    I1   I2 >    10  40

Enter    J1   J2 >    100 250

Enter    K1   K2 >    30  60
```

For the resulting SUBSET files:

- IMAX = 29 ... IMAX2 = 31
- JMAX = 149 ... JMAX2 = 151
- KMAX = 29 ... KMAX2 = 31

Running post_mfix/examine_data:

- original cell (10,100,30) ---> subset cell (1,1,1)
- original cell (40,250,60) ---> subset cell (31,151,31)