What is claimed is:

1. A data complementing system including an information processing apparatus, the system comprising:

a storage unit configured to store

region characteristic data that includes values of a plurality of data items regarding a predetermined region,

cell-region characteristic data that includes values of a plurality of data items regarding a cell region that is a region obtained by dividing the region into a mesh,

information indicating a missing data item that is the data item of missing data being data missed in the cell-region characteristic data,

external region characteristic data that includes values of a plurality of data items regarding an external region that is different from the region, and

an external cell-region characteristic data that includes values of a plurality of data items regarding an external cell region obtained by dividing the external region into a mesh; and

a complement model generation unit configured to generate a complement model for generating complement data that is for complementing the missing data, based on the external region characteristic data and the external cell-region characteristic data,

wherein

the complement model generation unit is configured to

generate a first regression equation for each of a plurality of the external regions, the first regression equation in which the missing data item is expressed with the data item in the external cell-region characteristic data, which corresponds to the missing data item,

generate a second regression equation for all combinations obtained by selecting two of the plurality of the external regions, the second regression equation in which a difference between partial regression coefficients in the first regression equation for each of the external regions is used as an objective variable, and a difference between the values of the same data items in the external region characteristic data for the two selected external regions is used as an explanatory variable, and

generate the complement model based on the first regression equation and the second regression equation, the complement model in which the missing data item is expressed with the data item included in an explanatory variable pattern, the partial regression coefficient in the first regression equation, and a partial regression coefficient in the second regression equation, the explanatory variable pattern being a combination of one or more data items in the cell-region characteristic data,

wherein

the storage unit is configured to store a plurality of the explanatory variable patterns, and

the complement model generation unit is configured to generate the complement model for each of the plurality of the explanatory variable patterns.

2. The data complementing system according to claim 1, wherein

the storage unit is configured to store a significance level used for determining significance of each of a plurality of the complement models, and

the complement model generation unit is configured to

determine the significance of the first regression equation and the significance of the second regression equation based on the significance level for each of the plurality of the complement models, and

generate a first significance determination result indicating the significance of the first regression equation and a second significance determination result indicating the significance of the second regression equation, for each of the plurality of the complement models.

3. The data complementing system according to claim 2, further comprising:

a complement model selection unit configured to

obtain a deviation between the value of the data item corresponding to the missing data item in the region characteristic data and a sum of the values of the complement data for all cell regions belonging to the predetermined region, for each of the plurality of the complement models,

output at least any of the deviation, the first significance determination result, and the second significance determination result, and

receive a selection of the complement model corresponding to each of the plurality of the explanatory variable patterns.

4. The data complementing system according to claim 3, further comprising:

a data complementing unit configured to generate the complement data based on the selected complement model.

5. The data complementing system according to claim 4, further comprising:

a complement data correction unit configured to correct the generated complement data based on the deviation.

6. The data complementing system according to claim 4, further comprising:

an output unit configured to output at least any of information on the selected complement model and complement data generated by the complement model.

7. The data complementing system according to claim 1, further comprising:

a receiving unit configured to receive an input of at least any of the region characteristic data, the cell-region characteristic data, and the information indicating the missing data item.

8. A data complementing method, the method comprising:

by an information processing apparatus,

storing

region characteristic data that includes values of a plurality of data items regarding a predetermined region,

cell-region characteristic data that includes values of a plurality of data items regarding a cell region that is a region obtained by dividing the region into a mesh,

information indicating a missing data item that is the data item of missing data being data missed in the cell-region characteristic data,

external region characteristic data that includes values of a plurality of data items regarding an external region that is different from the region, and

an external cell-region characteristic data that includes values of a plurality of data items regarding an external cell region obtained by dividing the external region into a mesh; and

generating a complement model for generating complement data that is for complementing the missing data, based on the external region characteristic data and the external cell-region characteristic data,

wherein the data complementing method further comprises:

by the information processing apparatus,

generating a first regression equation for each of a plurality of the external regions, the first regression equation in which the missing data item is expressed with the data item in the external cell-region characteristic data, which corresponds to the missing data item;

generating a second regression equation for all combinations obtained by selecting two of the plurality of the external regions, the second regression equation in which a difference between partial regression coefficients in the first regression equation for each of the external regions is used as an objective variable, and a difference between the values of the same data items in the external region characteristic data for the two selected external regions is used as an explanatory variable; and

generating the complement model based on the first regression equation and the second regression equation, the complement model in which the missing data item is expressed with the data item included in an explanatory variable pattern, the partial regression coefficient in the first regression equation, and a partial regression coefficient in the second regression equation, the explanatory variable pattern being a combination of one or more data items in the cell-region characteristic data,

wherein the data complementing method further comprises:

by the information processing apparatus,

storing a plurality of the explanatory variable patterns; and

generating the complement model for each of the plurality of the explanatory variable patterns.

9. The data complementing method according to claim 8, further comprising:

by the information processing apparatus,

storing a significance level used for determining significance of each of a plurality of the complement models;

determining the significance of the first regression equation and the significance of the second regression equation based on the significance level for each of the

plurality of the complement models; and

generating a first significance determination result indicating the significance of the first regression equation and a second significance determination result indicating the significance of the second regression equation, for each of the plurality of the complement models.

10. The data complementing method according to claim 9, further comprising:

by the information processing apparatus,

obtaining a deviation between the value of the data item corresponding to the missing data item in the region characteristic data and a sum of the values of the complement data for all cell regions belonging to the predetermined region, for each of the plurality of the complement models;

outputting at least any of the deviation, the first significance determination result, and the second significance determination result; and

receiving a selection of the complement model corresponding to each of the plurality of the explanatory variable patterns.

11. The data complementing method according to claim 10, further comprising:

by the information processing apparatus,

generating the complement data based on the selected complement model.