P

W

E

S

N

P

W

E

P

W

E

S

YES

YES

Input data:

Previous calculations:

Initial temperature map:

Calculation of the next time step:

Evaluation of the constant coefficients:

Solve the set of equations:

Final calculations and print results

END

?

New time step?

NO

NO

Evaluation of the non-constant coefficients:

YES

YES

Input data:

Previous calculations:

Initial map:

Calculation of the next time step:

Evaluation of the constant coefficients:

Solve the set of equations:

Final calculations and print results

END

?

New time step?

NO

NO

Evaluation of the non-constant coefficients:

Fn

Fw

Fe

Fs

Calculation of the next time step:

Calculation of the velocity:

Calculation of the intermediate velocity:

Calculation of the convective-diffusive term:

YES

Input data:

Previous calculations:

Initial map:

Calculation of the next time step:

Evaluation of the constant coefficients:

Solve the Poisson equation:

Final calculations and print results

END

NO

Evaluation of the non-constant coefficients:

jj

Calculation of the next time step:

Calculation of the velocity:

Calculation of the intermediate velocity:

Calculation of the convective-diffusive term:

YES

Input data:

Previous calculations:

Initial map:

Calculation of the next time step:

Evaluation of the constant coefficients:

Solve the Poisson equation:

Final calculations and print results

END

NO

Evaluation of the non-constant coefficients:

Evaluation of the temperature coefficients:

Calculation of the temperature:

YES

Input data:

Initial conditions:

Initial map:

Calculation of the diffusive term:

Calculation of the next time step:

Solve the set of equations:

Final calculations and print results

END

?

NO

Calculation of the convective term

Calculation of the energy: