CLAIMS

What is claimed is:

1. A method for forecasting weather, comprising:

acquiring a model wind field at a second time point, the model wind field being a wind field acquired by using a numerical weather forecast model, the numerical weather forecast model comprising a calculation method for solving a future weather state by using a numerical method;

acquiring first radar data at a first time point, the first radar data comprising a geographic location and radar reflectivity data corresponding to the geographic location;

acquiring an extrapolated wind field at the second time point by inputting the first radar data into an extrapolation model, the extrapolation model being configured to output a predicted wind field by analyzing a change trend of radar data by an extrapolation method; and

acquiring an optimized wind field at the second time point by inputting the extrapolated wind field and the model wind field into a variational module.

2. The method according to claim 1, wherein acquiring the optimized wind field at the second time point by inputting the extrapolated wind field and the model wind field into the variational module comprises:

acquiring the optimized wind field at the second time point by inputting the extrapolated wind field and the model wind field into the variational module for three-dimensional variational assimilation.

3. The method according to claim 2, wherein

the model wind field corresponds to model stability, the model stability being atmospheric stability acquired by using the numerical weather forecast model; and

acquiring the optimized wind field at the second time point by inputting the extrapolated wind field and the model wind field into the variational module for three-dimensional variational assimilation comprises:

acquiring the optimized wind field at the second time point and optimized stability corresponding to the optimized wind field by inputting the extrapolated wind field, the model wind field, and the model stability into the variational module for three-dimensional variational assimilation.

4. The method according to any of claims 1 to 3, wherein

acquiring the extrapolated wind field at the second time point by inputting the first radar data into the extrapolation model comprises:

acquiring second radar data and the extrapolated wind field at the second time point by inputting the first radar data into the extrapolation model; and

the method further comprises:

acquiring optimized radar data by adjusting the second radar data by using the optimized wind field.

5. The method according to claim 4, further comprising:

acquiring an observed wind field at the first time point, the observed wind field comprising a wind field acquired by observation on the ground;

wherein acquiring the second radar data and the extrapolated wind field at the second time point by inputting the first radar data into the extrapolation model comprises:

acquiring the second radar data and the extrapolated wind field at the second time point by inputting the first radar data and the observed wind field into the extrapolation model.

6. The method according to claim 4, wherein

the optimized wind field corresponds to optimized stability, the optimized stability being intended to describe atmospheric stability; and

acquiring the optimized radar data by adjusting the second radar data by using the optimized wind field comprises:

acquiring the optimized radar data by adjusting the second radar data by using the optimized wind field and the optimized stability.

7. The method according to claim 1, wherein

the extrapolation model comprises a feature extractor and a recurrent neural network model; and

acquiring the extrapolated wind field at the second time point by inputting the first radar data into the extrapolation model comprises:

acquiring a feature extraction result by inputting the first radar data into the feature extractor; and

acquiring the extrapolated wind field by inputting the feature extraction result into the recurrent neural network model.

8. The method according to claim 4, wherein acquiring the optimized radar data by adjusting the second radar data by using the optimized wind field comprises:

acquiring the optimized radar data by inputting the optimized wind field and the second

radar data into a neural network model, the optimized radar data being acquired by adjusting a cloud cluster position in the second radar data based on a wind speed and a wind direction of the optimized wind field.

9. A apparatus for forecasting weather , comprising:

an acquiring module, configured to acquire a model wind field at a second time point, the model wind field being a wind field acquired by using a numerical weather forecast model, the numerical weather forecast model comprising a calculation method for solving a future weather state by using a numerical method;

wherein the acquiring module is further configured to acquire first radar data at a first time point, the first radar data comprising a geographic location and radar reflectivity data corresponding to the geographic location;

an extrapolating module, configured to acquire an extrapolated wind field at the second time point by inputting the first radar data into an extrapolation model, the extrapolation model being configured to output a predicted wind field by analyzing a change trend of radar data by an extrapolation method; and

a variational module, configured to acquire an optimized wind field at the second time point by inputting the extrapolated wind field and the model wind field into the variational module.

10. A computer device, comprising a processor, and a memory configured to store at least one instruction, or at least one program, at least one code set, or at least one instruction set therein, wherein the processor, when loading and executing the at least one instruction, the at least one program, the at least one code set, or the at least one instruction set, is caused to perform the weather forecast method as defined in any one of claims 1 to 8.

11. A non-transitory computer-readable storage medium storing at least one instruction, at least one program, at least one code set, or at least one instruction set therein, wherein the at least one instruction, the at least one program, the at least one code set, or the at least one instruction set, when loaded and executed by a processor of a computer device, causes the computer device to perform the weather forecast method as defined in any one of claims 1 to 8.