CLAIMS

1. A method for braking a vehicle, comprising:

acquiring a distance between the vehicle and a preceding vehicle;

issuing an alarm in a case that the distance is less than or equal to a first threshold;

receiving a first braking command triggered by a user; and

braking the vehicle at a first preset deceleration, according to the first braking command;

wherein the first threshold is obtained from a sum of a target equivalent virtual stopping distance and an emergency braking distance, the target equivalent virtual stopping distance is obtained based on at least one of a first equivalent virtual stopping distance and a second equivalent virtual stopping distance, the first equivalent virtual stopping distance is a distance traveled by the vehicle during acquiring the distance between the vehicle and the preceding vehicle, the second equivalent virtual stopping distance is a distance traveled by the vehicle during triggering the first braking command by the user, and the emergency braking distance is a distance traveled by the vehicle once braking the vehicle at the first preset deceleration, wherein the emergency braking distance is obtained based on at least one of a first braking distance, a second braking distance and a third braking distance, and the first braking distance is a distance traveled by the vehicle in a case that all bogies are used for braking in a normal operating status, the second braking distance is a distance traveled by the vehicle in a case that all bogies are used for braking in a wet rail status, and the third braking distance is a distance traveled by the vehicle while braking in the wet rail status with a preset number of bogies being cut-off,

wherein the method further comprises:

in a case that the distance is less than or equal to a second threshold, issuing an alarm, wherein the second threshold is greater than the first threshold, and the second threshold is determined based on the first threshold and a minimum alarm interval;

receiving a second braking command triggered by the user; and

braking the vehicle at a second preset deceleration, based on the second braking command, wherein the second preset deceleration is less than the first preset deceleration.

2. The method according to claim 1, wherein the target equivalent virtual stopping distance is a sum of the first equivalent virtual stopping distance and the second equivalent virtual stopping distance.

~~3. The method according to claim 1, wherein the emergency braking distance is obtained based on at least one of a first braking distance, a second braking distance and a third braking distance, and the first braking distance is a distance traveled by the vehicle in a case that all bogies are used for braking in a normal operating status, the second braking distance is a distance traveled by the vehicle in a case that all bogies are used for braking in a wet rail status, and the third braking distance is a distance traveled by the vehicle while braking in the wet rail status with a preset number of bogies being cut-off.~~

4<u>3</u>. The method according to claim ~~3~~<u>1</u>, wherein the emergency braking distance is a maximum value among the first braking distance, the second braking distance and the third braking distance.

~~5. The method according to any one of claims 1-4, further comprising:~~

~~in a case that the distance is less than or equal to a second threshold, issuing an alarm, wherein the second threshold is greater than the first threshold, and the second threshold is determined based on the first threshold and a minimum alarm interval;~~

~~receiving a second braking command triggered by the user; and~~

~~braking the vehicle at a second preset deceleration, based on the second braking command, wherein the second preset deceleration is less than the first preset deceleration.~~

~~6~~<u>4</u>. A device for braking a vehicle, comprising:

an acquisition unit, configured to acquire a distance between the vehicle and a preceding vehicle;

a first alarm unit, configured to issue an alarm in a case that the distance is less than or equal to a first threshold; and

a first braking unit, configured to receive a first braking command triggered by a

user, and brake the vehicle at a first preset deceleration based on the first braking command;

wherein the first threshold is obtained from a sum of a target equivalent virtual stopping distance and an emergency braking distance, the target equivalent virtual stopping distance is obtained based on at least one of a first equivalent virtual stopping distance and a second equivalent virtual stopping distance, the first equivalent virtual stopping distance is a distance traveled by the vehicle during acquiring the distance between the vehicle and the preceding vehicle, the second equivalent virtual stopping distance is a distance traveled by the vehicle during triggering the first braking command by the user, and the emergency braking distance is a distance traveled by the vehicle once braking the vehicle at the first preset deceleration, wherein the emergency braking distance is obtained based on at least one of a first braking distance, a second braking distance and a third braking distance, and the first braking distance is a distance traveled by the vehicle in a case that all bogies are used for braking in a normal operating status, the second braking distance is a distance traveled by the vehicle in a case that all bogies are used for braking in a wet rail status, and the third braking distance is a distance traveled by the vehicle while braking in the wet rail status with a preset number of bogies being cut-off,

wherein the device further comprises:

a second alarm unit, configured to issue an alarm in a case that the distance is less than or equal to a second threshold, wherein the second threshold is greater than the first threshold, the second threshold is determined based on the first threshold and a minimum alarm interval; and

a second braking unit, configured to receive a second braking command triggered by the user, and brake the vehicle at a second preset deceleration based on the second braking command, wherein the second preset deceleration is less than the first preset deceleration.

~~7~~5. The device according to claim ~~6~~4, wherein the target equivalent virtual stopping distance is a sum of the first equivalent virtual stopping distance and the second equivalent virtual stopping distance.

~~8. The device according to claim 6, wherein the emergency braking distance is~~

~~obtained based on at least one of a first braking distance, a second braking distance and a third braking distance, and the first braking distance is a distance traveled by the vehicle in a case that all bogies are used for braking in a normal operating status, the second braking distance is a distance traveled by the vehicle in a case that all bogies are used for braking in a wet rail status, and the third braking distance is a distance traveled by the vehicle while braking in the wet rail status with a preset number of bogies being cut-off.~~

~~9~~6. The device according to claim ~~8~~4, wherein the emergency braking distance is a maximum value among the first braking distance, the second braking distance and the third braking distance.

~~10. The device according to any one of claims 6-9, further comprising:~~

~~a second alarm unit, configured to issue an alarm in a case that the distance is less than or equal to a second threshold, wherein the second threshold is greater than the first threshold, the second threshold is determined based on the first threshold and a minimum alarm interval; and~~

~~a second braking unit, configured to receive a second braking command triggered by the user, and brake the vehicle at a second preset deceleration based on the second braking command, wherein the second preset deceleration is less than the first preset deceleration.~~

~~11~~7. A train comprising a device for braking a vehicle, wherein the device is configured to implement the method according to any one of claims 1 to ~~5~~3.