WHAT IS CLAIMED IS:

1. A method for updating a time offset value for a non-terrestrial network (NTN), performed by a base station, comprising:

determining an update condition being satisfied;

updating the time offset value for the NTN;

wherein updating the time offset value comprises: updating the time offset value based on a predefined update mechanism of the time offset value in response to a current time being an update time defined by the predefined update mechanism;

wherein the predefined update mechanism of the time offset value is an update mechanism pre-written into a communication protocol, or an update mechanism negotiated between the base station of the NTN and the UE.

2. The method of claim 1, wherein the update condition being satisfied comprises at least one of:

receiving an update request for requesting to update the time offset value reported by a user equipment (UE);

a number of UEs that report an update request for requesting to update the time offset value reaching a predetermined number;

a ratio of a number of UEs that report an update request for requesting to update the time offset value to a total number of UEs within an NTN cell reaching a predetermined ratio value;

a current orbit of a satellite of the NTN being an orbit for which the time offset value needs to be updated; or

a current orbital position of a satellite of the NTN being a predefined update position.

3. The method of claim 1 or 2, further comprising at least one of:

sending a trigger signaling for triggering an update request for requesting to update the time offset value; or

sending a trigger condition for triggering an update request for requesting to update the time offset value.

4. The method of claim 1, wherein a trigger condition for updating the time offset value is predefined.

5. The method of any one of claims 2 to 4, wherein the update request comprises at least one of:

request information, for requesting to update the time offset value;

an update parameter, for determining an updated time offset value; or

a suggested value of the time offset value.

6. The method of any one of claims 1 to 5, further comprising:

sending an update notification of the time offset value;

wherein sending the update notification of the time offset value comprises at least one of:

sending a physical layer signaling carrying an updated time offset value;

sending a higher-layer signaling carrying an updated time offset value; or

sending a physical layer signal having a correspondence with an updated time offset value.

7. The method of claim 6, wherein sending the physical layer signaling carrying the updated time offset value comprises one of:

sending group common downlink control information carrying the updated time offset value; or

sending a UE-specific downlink control information carrying the updated time offset value.

8. The method of claim 6 or 7, wherein the update notification comprises at least one of:

an update instruction, for indicating to update the time offset value;

an update parameter, for determining an updated time offset time; or

an update value, for indicating an updated time offset time.

9. A method performed by a user equipment (UE), comprising:

updating a time offset value for a non-terrestrial network (NTN);

wherein updating the time offset value comprises: updating the time offset value based on a predefined update mechanism of the time offset value in response to a current time being an update time defined by the predefined update mechanism;

wherein the predefined update mechanism of the time offset value is an update mechanism pre-written into a communication protocol, or an update mechanism negotiated between the base station of the NTN and the UE.

10. The method of claim 9, further comprising:

receiving an update notification for updating the time offset value.

11. The method of claim 10, further comprising:

sending an update request for requesting to update the time offset value.

12. The method of claim 11, wherein the update request comprises at least one of:

request information, for requesting to update the time offset value;

an update parameter, for determining an updated time offset value; or

a suggested value of the time offset value.

13. The method of any one of claims 10 to 12, wherein the update notification comprises at least one of:

an update instruction, for indicating to update the time offset value;

an update parameter, for determining an updated time offset time; or

an update value, for indicating an updated time offset time.

14. The method of any one of claims 10 to 13, wherein receiving the update notification for updating the time offset value comprises:

determining an updated time offset value in response to the update notification carrying an update instruction.

15. The method of claim 9, wherein updating the time offset value comprises at least one of:

updating the time offset value in response to an orbit of a satellite of the NTN being an orbit for which the time offset value needs to be updated; or

updating the time offset value in response to an orbital position of a satellite of the NTN being a predefined update position.

16. The method of claim 14 or 15, wherein updating the time offset value comprises at least one of:

determining the updated time offset value based on predefined adjustment information; or

determining the updated time offset value based on a predefined correspondence between status information and time offset values, wherein the status information comprises at least one of current time information or orbital information of a satellite of the NTN.

17. A communication device, comprising: a processor; a transceiver; and a memory storing an executable program, wherein the processor is configured to perform the method of any one of claims 1 to 8 or claims 9 to 16.

18. A non-transitory computer-readable storage medium having stored thereon an executable program that when executed by a processor, causes the processor to perform the method of any one of claims 1 to 8 or claims 9 to 16.