2001).

The calculation of the loss probability according to number of users accepted by the CAC function shows (Fig. 4), that the maximal number accepted by the first function is 31 users while this number is 24 users accepted with a loss <1% by the second function (Fig. 5). In the case of $f_2(x)$, the probability of loss becomes important when the number of users passes 25. It is caused by the congestion and the instability of the system mentioned previously.

In the classical CDMA, 31 users are accepted on 8 codes (spreading factor), this gives a percentage of code consumed of 8/31 = 0.26. This percentage of 0.33 in the CDMA with limit represents the decision parameter of the CAC function (Choi and Chan, 2002).

Now, in the case of data users, tow permission probability functions are compared as presented in Figure 6 these functions differ by the control limit of the MAC layer (S_d) that is 13 (lightly superior of the MAC layer clue) and 12 (lightly inferior of the MAC layer clue). The permission at zero is always 0.25 and the deviation point is equal to 10.

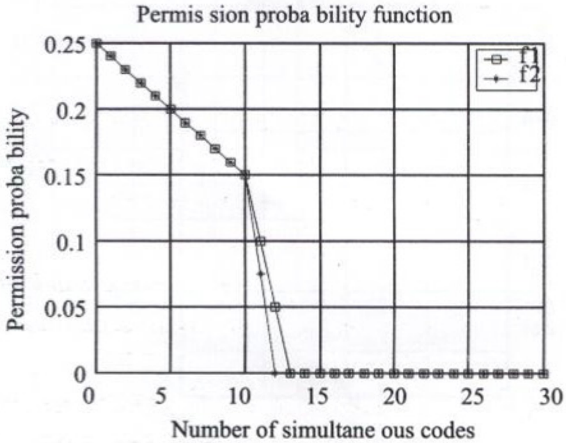

Fig. 6. Permission functions for.

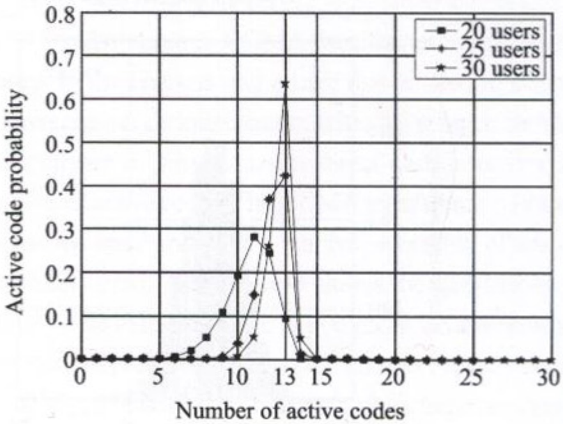

Fig. 7. Distribution of the data users in the case of $f_1(x)$.

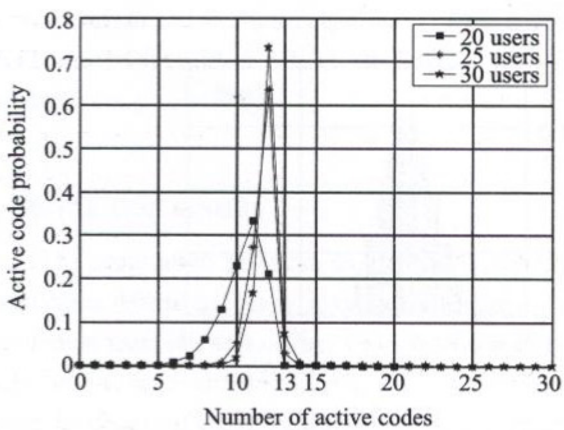

Fig. 8. Distribution of the data users in the case of $f_2(x)$.

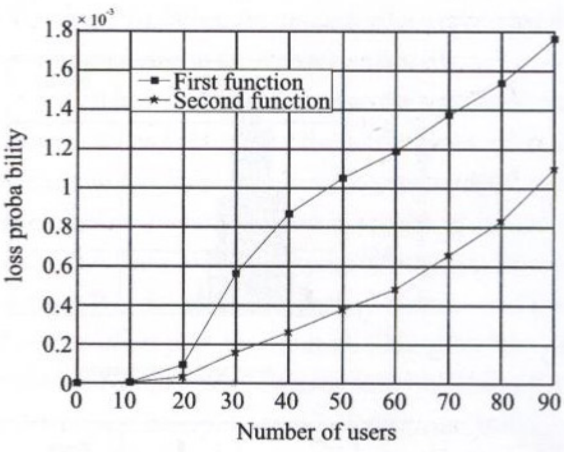

Fig. 9. Loss probability for data users, in the case of $f_1(x)$ and $f_2(x)$.

A data packet can wait a long time before being sent. This time of waiting is a lot bigger than the round-trip delay (RTD) in LEO. A user receives the answer of his packet after RTD and decides to continue the transmission or to wait that the system is less loaded. One never throws a packet for failure of the pull of Bernoulli since a packet can wait a long time in the tampon that is supposed infinite. The only reason of loss is therefore the error due to the other user interference in CDMA; it is the error probability